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OUR COUNTRY AND COLONIAL SUBSCRIBERS are requested to furnish the Editor with any trade gossip that they may consider interesting.

Subscribers are requested to observe that, for the future, the receipt of THE CHEMIST AND DRUGGIST in a Green Wrapper indicates that with that number the term of subscription has expired, and that no further numbers will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order without an exact system like this.

the French Mint, and Perpetual Secretary of the Imperial Academy, who was one of Faraday's intimate friends. By permission of the managers, the lecture will be given in the theatre of the Royal Institution, associated for so many years with FARADAY's own expositions. M. DUMAS, who was formerly Minister of Public Instruction in France, and has done much to improve the system of scientific education in that country, was for many years one of the most brilliant and elegant lecturers on chemistry, and is the author of many researches which have contributed most importantly to the development of chemical science. Many of our readers will doubtless recollect that M. DUMAS was President of the Commission to whom we owe the *Codex* of 1866. This distinguished chemist will be present as a guest at the dinner of the Chemical Society, which will take place at Willis's Rooms on the 18th of June. The preliminary list of stewards for this dinner comprises the following names:—F. A. Abel, T. Andrews, J. Atfield, I. L. Bell, J. Brazier, A. Bernays, D. Campbell, E. T. Chapman, A. H. Church, H. Debus, W. De La Rue, F. Field, G. C. Foster, R. Galloway, J. H. Gilbert, J. H. Gladstone, T. Graham, G. Griffith, M. Hall, A. V. Hercourt, D. Hanbury, C. Heisch, F. C. Hills, T. H. Hills, M. Holzmann, J. B. Lawes, G. D. Longstaff, W. A. Miller, T. Morson, jun., H. Müller, E. C. Nicholson, W. Odling, J. D. Perrins, W. H. Perkin, H. E. Roscoe, E. Schunck, P. Spence, A. Smith, D. Smith, J. Stenhouse, A. Smea, jun., J. C. Stevenson, C. Tomlinson, J. L. Thudichum, R. V. Tuson, J. Tyndall, J. A. Voelcker, P. J. Worsley, H. A. Wilson, J. Williams, A. W. Williamson.

GEORGE WEBB SANDFORD.

WE cannot allow this gentleman, six times President of the Pharmaceutical Society, to pass into comparative retirement without a word of notice. It will be conceded by all who have the interests of pharmacy at heart that the skill and determined energy with which he pursued his plans would amply have justified the wisdom of his election, even had not his efforts been rewarded with success.

Elsewhere will be found the record of the rejoicings held partly in Mr. SANDFORD's honour, as also in commemoration of the recent establishment of pharmacy by law. Hard must have been the day to the one most concerned. There was a Council Meeting, followed by the usual anniversary, the presentation of a testimonial, and a public dinner. The guest of the evening, doubtless, was not sorry when the sheets claimed him for their own. Testimonials in themselves are intrinsically worth little, save as the tangible expression of thoughts which cannot otherwise be conveyed. "The grateful acknowledgment" offered most ungrudgingly by all ranks of pharmacists to Mr. SANDFORD for his unwearied exertions during the past few years, is not to be estimated at the value of so much plate. We are told that the original inscription for the silver salver bore the words, "As a mark of personal esteem." The Committee felt that their President need not to be reminded of the regard in which he was held by those around him, and the phrase was consequently omitted.

We are glad to state that Mr. SANDFORD retires from nothing but the Presidential chair; indeed, he would probably feel uncomfortable without plenty of work to do.

One crowning excellence in his character deserves special mention—the transparent fairness with which he uniformly conducted the discussions of the Society. Having himself strong opinions, and being gifted with rare facility in clothing them in appropriate language, he maintained the dignity of his office, and never sank the President in the

Editorial Notes.

THE new President of the Pharmaceutical Society of Great Britain is Mr. HENRY SUGDEN EVANS.

ACCORDING to a statement of Messrs. RICHARD SYMONDS and SON, there seems likely to be a considerable increase in the manufacture of imitation "champagnes," "sparkling hocks," and "sparkling moselles." From a circular issued by some Belgian chemists, it appears that they have patented a machine for the manufacture of such imitations. The produce can, it is stated, be sold at a franc a bottle, or less than 10s. per dozen, and yield a profit of more than 30l. upon 1,000 bottles, with the additional advantage that the "residuum" can be "instantaneously made into vinegar." A list is given of 93 houses to whom, among others, the right to use the patent has been conceded, and as this list is described as the third, probably the concession has also been extensively made in Germany and elsewhere. No doubt considerable quantities of these imitation wines will find their way from France and Germany to this country, and be sold as the genuine products of Champagne, the Rhine, and the Moselle.

THE Chemical Society, wishing to do honour to the memory of its late distinguished Fellow, Professor FARADAY, and at the same time to promote the personal intercourse of the Society with eminent foreign chemists has recently instituted a Faraday Medal, to be awarded from time to time to some foreign chemist upon his accepting the invitation of the president and council of the Society to deliver a lecture to the Fellows. The inaugural lecture will be delivered on Thursday next, the 17th of June, by M. DUMAS, Master of

partizan, while the least experienced debater received at his hands as much attention as some veteran Ulysses.

Long may he live to wear his laurels, and to fight for future legislation; and let us hope that JOHN PRESCOTT KNIGHT may be enabled to transmit his features to posterity with a reasonable amount of happiness.

J. I.

Veterinary Notes.

BY W. HUNTING, M.R.C.V.S.

QUITTOR.

THIS term is given to an opening in the coronet of a horse, discharging matter and accompanied by pain and swelling.

Surgically speaking we describe it as a sinus. Quittor is always the result of injury, most commonly a wound by a nail. When a nail has penetrated and set up inflammation inside of the hoof, the matter formed, not being able to make its way through the horn, gradually finds its way to the coronet, and there escapes through the skin.

In a few mild cases, the exit of the matter is followed by speedy recovery, but in by far the majority of cases, the opening shows no tendency to heal, the discharge continues, and the pain and lameness remain. Now this is due to one of two causes, either there is some dead portion of tissue lodged in the part, as a piece of decaying bone or fascia, or else the wall of the sinus has become so thick and hard as to resist the ordinary reparative power of nature.

Whichever of these be the cause, the part if not interfered with, would be a very considerable time before it resumed its normal condition. In case of the lodgement of a piece of dead bone, nature would doubtless, in time, remove it by the constant suppuration; but time and suffering are both saved by interference. Both of the perpetuating causes may frequently be removed by the same means: viz., setting up such an amount of inflammation as shall destroy the callous lining membrane, and thoroughly detach any portion of dead tissue, which would then be removed in the discharge, and a healthy granulating surface left. For this end numerous means are employed. Blisters and firing, or even incision are resorted to, but the two latter require a qualified professional man. Blisters may be used, but I think are of no use, save in conjunction with caustic injections. The old farriers used corrosive sublimate in powder. It was paced in a small hollow cylinder of paper, and pushed into the sinus. This method is very good when only one passage exists, but too often the sinus has three or four collateral branches, which with the plug of caustic would escape its effects. I still believe the sublimate to be our most valuable agent, but it should be used in solution and applied with a syringe, so as to come in contact with the whole of the sinus.

A good form of injection, is

Corrosive Sublimate,	3j.
Hydrochloric Acid,	mx.
Rectified Spirit,	3j.

This solution may be used once a day for two days, and then either diluted to half the strength, or used once every three days. If there is still much pain after a fortnight of this treatment, apply a smart blister. Solutions of the sulphates of zinc, iron, and copper, are sometimes used, but my experience leads me to discountenance the trial of these liquids. The general health must not be neglected. An occasional dose of physic being useful, and during the outset a dose or two of opium to allay the great pain.

"RED WATER" IN CATTLE.

Most commonly seen in cows, depends upon rank herbage or pithy turnips, or even may be caused by apparently good food grown on damp clayey soils. It is not an affection of the bladder or kidneys, but a blood-disease, in which the colouring matter of the blood filters, so to speak, through the kidney with the ordinary watery matters. Red water produces no peculiar general symptoms, save a steady and rapid falling off in condition. The urine in this disease never contains clots of blood, thus differing from hematuria and shewing that there is no rupture of any urinary organs.

The colour of the urine varies from a pale sherry to a nearly black.

Tonics and stimulants are required from the commencement, as

Ether Sulph.	} 3 oz. of each.
Tr. Gentian	
Tr. Zingib.	

To be given once or twice a day in linseed tea.

An aperient must be given at the outset, as

Magnes. Sulph.	1lb.
Aloes Pulv.	1oz.
Zingib.	1oz.

To be given in not less than three quarts of oatmeal gruel. Care in feeding, especially frequent changes of food, must be attended to. If the animal will not eat, linseed and oatmeal must be given in the form of gruel. Fresh air, but an even temperature, should be kept up if possible. It is important also, to mention what must not be done. On no account are diuretics or astringents to be used, nor any stimulants to be applied to the loins.

Pharmaceutical Society of Great Britain.

CONVERSAZIONE.

May 18, 1869. *

THE Conversazione given by the Pharmaceutical Society of Great Britain, was as largely attended as ever: in accordance with the invitation of the Executive of the Society, a number of objects of interest in science and art had been lent and were collected and displayed in the rooms of the Society to the best possible advantage. Among these may be mentioned:

Several new forms of spectroscopes, a powerful magneto-electric machine, with quantity and intensity armatures, and an illustration of Professor Graham's discovery of the absorption of hydrogen by palladium, exhibited by Mr. Browning.

A new polarising saccharometer made by Mr. Browning, exhibited by Dr. Dupré.

A large specimen of turacine, the remarkable red colouring matter contained in several of the wing feathers of *Corythaix albeocristata*, one of the commonest Turacos or plantain eaters (turacine contains copper, and has the formula $C_{20}H_{36}CuN_8O_{10}$), also specimens of the wings and feathers of this bird, exhibited by Professor Church M.A.

The spectrum of jargonium from a piece of jargon lent for the occasion by H. C. Sorby, F.R.S., exhibited by W. Crookes, F.R.S.

Some very beautiful specimens of lakes produced from coal tar colours, exhibited by W. F. Perkin, F.R.S.

An experiment illustrating Mr. Graham's discovery of the absorption of hydrogen by palladium by the alternate coiling and uncoiling of strips of palladium foil, forming the

* From our own Reporter.

positive and negative poles of a battery, exactly as platinum does in the usual method of effecting the electrolysis of waters. The strips are varnished on one side, and their life-like movements is due to the alternate expansion and contraction of the exposed surfaces. By suitable mechanism the strips of palladium are made alternately positive and negative poles, and the hydrogen liberated at the negative pole causes the piece of foil to extend itself by the expansion due to the absorption of hydrogen, but when the current is reversed, the oxygen liberated combines with the hydrogen, removing it from the palladium, which returns to its former condition and bulk. This beautiful experiment was exhibited by Mr. W. Chandler Roberts.

An alphabetical dial telegraph instrument, etc., exhibited by Messrs. Siemens Brothers.

An apparatus for saving and preserving life at sea, exhibited by Commander Bouchier.

Steering signals, anti-corrosive paints, iron telegraph post, magnetic torpedo triggers, etc., exhibited by Mr. F. V. Gisborne.

An ozone generator for disinfecting sick rooms or hospitals, pocket spectroscopes, magneto-electric machine, etc., exhibited by Mr. Ladd.

Magneto-electric machines, for medical purposes; and Selwyn's galvanometer, for the detection of feeble currents of electricity, exhibited by Mr. Apps.

Polariscopes, microscopes and objects, telescope, etc., exhibited by Messrs. Horne and Thornthwaite.

Wier's atmospheric telegraph and its applications, exhibited by Messrs. Weir & Co. The following extract from the *Times* will give a good idea of the application of the system to railways:—"The invention, briefly described, consists of an air chamber, which any passenger in a train may depress by the pulling of a handle, and thereby send a current of air along a tube the whole length of the train, and give an alarm to the guards at either end of the train; and, if thought necessary, to the engine-driver as well at the same moment. It is applied in this way. On the top of each carriage is fixed an air chamber composed of German silver, and having the form of a couple of full sized saucers placed one against the other. A metal tube, having an eighth of an inch bore, passes from the bottom of these to the end of each carriage, and is connected with a similar arrangement on the next carriage by a piece of common india-rubber gas tube, terminating in an ingenious brass tap, which is always shut off by the act of disconnection, and always turned on by making the junction. The connection is made by the man who couples the carriages. Arrived in the guards' vans, the tube ends in both cases in an air chamber made in precisely the same manner as those on the tops of the carriages, except that it is not much larger in circumference than a crown piece. It is obvious that if either of these air chambers is depressed, as one closes a pair of bellows, the others must expand by the excessive pressure of the confined air, because, presuming all the joints are sound, there can be no outlet for it. Such is the arrangement corresponding with the wires and the galvanic batteries of the ordinary telegraph. To work it the passenger pulls a common bell handle in the roof of his compartment, and thereby depresses the air chamber on the top of his carriage, by a simple arrangement of levers also on the outside of the carriage, and not to be got at by the passenger. The air being thus forced from the chamber into the tube, it runs to the front and the back of the train at the same time, and forcing its way up into the air chambers in the guards' vans obliges them to expand. Expanding, they push aside a catch, and thus set free a clockwork arrangement, which continues striking a bell

until some one has got on top of the carriage where the alarm has been given and sets free the bell-pull; for in drawing it down the passenger has of necessity locked it, and by the same action sent a semaphore arm out at the end of his carriage. These arrangements would of course lead to the detection of the giver of the alarm, and his punishment under the act, if it were found to be a false alarm." That the system is equally applicable to ships' signals will be seen from the following extract from the *Liverpool Daily Post*:—"It may be briefly described as consisting primarily of a small air chamber to which atmospheric air has perfect access. In this chamber an exceedingly simple slightly elastic disc is placed, which, acted on by a lever, compresses the air in the chamber, and propels it through a metallic tube of small diameter to any part of the ship with which it is considered desirable to communicate. The air so propelled rings a signal bell in the first instance to secure attention to the signal transmitted; the action of the transmitted air, at the same moment that it strikes the bell, lifts a small and delicate opaque shutter, revealing under it the word or words of the intended order—such as the 'steersman,' 'port,' 'starboard,' 'hard-a-port,' 'hard starboard,' etc.; to the engine room, 'ahead slow,' 'ahead full speed,' 'astern slow,' 'astern full speed,' etc., with any variety of directions which it may be deemed proper to adopt. The chief point where these directions must be given, it will be readily understood, is the locality in which the commander of the vessel is placed, such as the 'bridge' in the case of an ocean-going steamer. Here the handle of the instrument is placed, the whole revolving on a pivot, so that the handle is pressed down to the point which will indicate at a distance the command issued. This is guided in the mode of working by a dial inscribed with the words intended to be communicated, and here, by an ingenious application of a 'tell-tale' index, is shown the mode in which the command is being carried out, and also the extent to which it has been effected."

A model of wire tramway, exhibited by the Wire Tramway Company.

"Palinurus" for determining the deviation of Iron Ships' compasses, devised and exhibited by Mr. W. F. Reynolds.

Microscopes, exhibited by Messrs. R. and J. Beck and Mr. Ross.

Self-recording aneroid barometer, etc., exhibited by the London Stereoscopic Company.

Specimens of metallic Indium, and of cesium and rubidium alums, and also, more particularly, a very beautiful specimen of metallic zirconium, crystallized from aluminium, exhibited by Messrs. Hopkins and Williams.

Microscopes, objects, etc., exhibited by Messrs. Murray and Heath, and by Mr. How.

A new binocular micro-spectroscope, devised by W. Crookes, F.R.S., exhibited by Mr. Collins.

A collection of apparatus for the indication of fire-damp in mines, or coal-gas in houses, exhibited by Mr. George F. Ansell.

A specimen of chloride of apo-morphia, discovered by Dr. Matthiessen and Mr. Wright, and prepared by Messrs. Macfarlane of Edinburgh. This substance as our readers are aware is a powerful non-irritant emetic and contrastimulant, one-tenth of a grain placed under the skin will cause immediate vomiting.

A complete set of metric weights and measures, as used in various trades, presented by Professor Atfield.

Mr. How exhibited by the aid of the oxy-hydrogen light, some beautiful photographs, etc.

Mr. Waddington exhibited on the screen the fat acids, mounted as polariscope objects.

tubes in the form of a coronet deserves special mention.

Mr. Porter exhibited a very ingenious apparatus, devised by himself, for making nitrous oxide gas. Briefly, the apparatus consists of a generating flask, connected with a series of Woolf's bottles, two of which contain water, the third, solution of sulphate of iron, and the fourth, solution of caustic potash. The first of the bottles is furnished with a third neck, which provides communication with an arrangement for regulating the supply of gas and giving notice of danger. This consists, fundamentally, of a float attached to levers, having for its fulcrum the play of the gas-tap supplying heat to the flask. When the heat becomes too great, the action of the float diminishes the supply of gas, and if this be not sufficient to avert danger, a whistle is shortly sounded to attract the attention of the operator.

Bunsen's modification of the Sprengel-air-pump for filtration and evaporation *in vacuo*, was exhibited in action, it will hardly be necessary to give an explanation of the construction of this admirable piece of apparatus.

To enumerate each example of skill in scientific and artistic handicraft, exhibited for the amusement and edification of the admiring assembly collected under one roof by the hospitality of the Pharmaceutical Society of Great Britain, would fill more space than we have at our command, we shall therefore conclude our brief summary by recording the fact, that a pretty exhibition of the oxy-hydrogen dissolving-view apparatus, as applied to lecture illustration, by the London Stereoscopic Company, was made in the Lecture Theatre, the subject was Abyssinia, and the illustrations were described by Mr. Martin.

Professor Tomlinson also gave a short lecture on "The influence of clean and dirty surfaces on crystallization, ebullition and distillation"; the Professor very ably set forth the distinction between a chemically clean, and a chemically dirty surface, and did not fail in attributing many hitherto almost unattributable phenomena, to the secret working of this hidden *chemical dirtiness*.

The Sandford Testimonial Plate, held a conspicuous position in the display, and has doubtless given the President of the Pharmaceutical Society much gratification. It was inscribed as below, and, as there set forth, was accompanied by other plate to a considerable amount.

PRESENTED
WITH OTHER PLATE, VALUE TWO HUNDRED GUINEAS,
TO
GEORGE WEBB SANDFORD, Esq.,
PRESIDENT OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN,
IN GRATEFUL ACKNOWLEDGEMENT
OF HIS UNWEARIED EXERTIONS IN THE CAUSE OF PHARMACY,
AND IN COMMEMORATION
OF THE PASSING OF THE PHARMACY ACT OF 1868.
19TH OF MAY, 1869.
COR UNUM VIA UNA.

AT THE CONVERSAZIONE.

BY A MEMBER.

THIS year, so memorable for pharmacists—the year 1, I may call it, of the new pharmaceutical era—has aroused an unprecedented interest in all matters concerning the business of chemists and druggists, especially among themselves, so that it is no wonder that the interesting annual *soirée* of the Pharmaceutical Society was the occasion of a larger gathering than has, perhaps, ever met in Bloomsbury-

...gatherings will increase in importance and interest, and will attract still larger numbers of the members and friends than heretofore; and yet it may be as reasonably doubted whether another fifty ordinary-sized pharmacists could be fitted into the Society's rooms by any process short of amalgamation. The Pharmaceutical Society is in a most flourishing condition, and certainly displays no niggardliness in providing this annual show. Would there be any insuperable objection to their advancing just one step further by taking some more spacious rooms for the occasion, and thus, with their prestige, and the means at their disposal, making their *conversazione* a really magnificent affair. If this were done, perhaps ladies might also be introduced as an additional attraction, which would certainly not be an innovation in this kind of meeting, and would, I think, be a welcome change to all civilised druggists, though I am not sure whether the exhibitors of drugs, chemicals, and druggists' sundries would have much reason to applaud the system. Had there been any there on this occasion, I might have been tempted to wander a little from my more immediate duty, by a few studies of the toilettes, *à la* "Court Journal." Under the circumstances, I shall only remark that we were, perhaps, as good-looking a party of druggists as could be assembled.

My visit was a rather hurried one, and I may, therefore, have omitted to notice some exhibits especially worthy of attention. Considerations of space, and a little tendency to crowdphobia, prevented me from attending the exhibition of oxyhydrogen dissolving views, shown by Mr. Martin, of the London Stereoscopic Company, and Professor Tomlinson's lecture on the Influence of Clean and Dirty Surfaces on Crystallization, Ebullition, and Distillation. The lecture, I believe, was very interesting in its details to chemists, and it was a subject well suited to such an audience. As the scientific department of the *conversazione* will be elsewhere treated upon in your journal, I may confine my remarks chiefly to objects of interest to the trade as a trade which, as is usually the case, were not in proportion to the excellence of the opportunity which such an occasion offers to manufacturers and others. If, therefore, I appear to disregard the more brilliant display which had been collected from the domains of science and art, it is not from any want of appreciation of their importance and interest, but because I am bound to consider pharmacy as belonging more especially to "nos moutons," and also in the hope that this department may become more and more the chief feature of these gatherings. It would not be fair, however, to pass over altogether the beautiful contributions of microscopes, stereoscopes, photographs, paintings, polariscopes, and electric apparatus, which were exhibited by such well-known firms as the London Stereoscopic Company, Messrs. Murray and Heath, Horne and Thornthwaite, R. and J. Beck, Ross, Ladd, How, Apps, and others. Mr. Apps, who has made his name famous by the Gigantic Induction Coil now in use at the Polytechnic, and from which important scientific results are likely to be obtained, gave an exhibition of some very handsome vacuum tube displays, and, in another place showed a novel and ingenious apparatus which, by the aid of magnetic power, would discover the position, and readily extract a bullet from a wounded man. This was illustrated by extracting one from a piece of raw meat. Wires are connected with the instrument, and when this touches the bullet, a bell is sounded at the other extremity of the wires. Professor Church showed a fine specimen of Turacine, a new colouring matter, extracted from the feathers of certain birds. Next to this was a series of specimens of lakes of all colours, obtained from the aniline dyes, not the least

interesting feature of these being that they had been prepared and were now exhibited by the original discoverer of the coal-tar colours, Mr. W. F. Perkin, F.R.S. In the same case with Professor Church's specimens was a small quantity of the new opium salt, chloride of apo-morpha, the discovery of Dr. Matthiessen and Mr. Wright. The editorial note upon this remarkable product in the last number of the

CHEMIST AND DRUGGIST had evidently excited a large amount of curiosity about it among the visitors. This specimen had been prepared from morphia, supplied by Messrs. Macfarlan and Co., of Edinburgh.

In the Museum, Mr. Martindale, of University College Hospital, showed in action a clever piece of machinery, designed by, and constructed for himself, the object of which was to spread large sheets of plaster, which was evidently accomplished with the greatest ease and most perfect regularity. We all know what vast pains dispensers will often take to save themselves manual labour and tedious occupations; but Mr. Martindale has eclipsed them all. The calico is simply drawn by the hand between rollers, which, as they revolve, spread the plaster smoothly over the upper surface, the material being supplied in a proper consistence from a trough above, in which it is kept at a regulated temperature by means of a Bunsen burner. Necessarily the apparatus had a somewhat clumsy appearance; but this could be easily overcome if manufactured for sale. This hint ought to be valuable to such a firm as John Bailey and Son, of Salford, who seem to be devoting themselves considerably to this class of machinery. I may here remark that these engineers exhibited one of Bushby's Pill Machines, which, however, should have been shown in action.

Messrs. Evans and Lescher had on view two of their Materia Medica Cabinets, which were much admired for their completeness and compactness. The larger cabinet, got up by Messrs. Evans and Co., is a model of order and neatness, and provides excellent and characteristic specimens of the various articles of the Materia Medica, and, in addition, a number of pharmaceutical specimens, everything being, of course, fully labelled, according to the scientific and general names. Several dried plants are also given, and a useful set of coloured plates, representing medicinal plants, and certain others likely to be confounded with them. It may be objected, as, indeed, it has been, that such aids as these are adjuncts to a "cramming" process, which, in one sense, is very obvious; but it should be remembered that every earnest student is constantly cramming, even though he may more euphuistically describe his studies. These Materia Medica cabinets must be an immense assistance to all students of medicine, though even with them it is still necessary to employ all the sense and energy with which one may be endowed. But surely a student may avail himself of every means to lighten and systematise his labour, and where museums are not readily available, I think the possession of one of these cabinets must be invaluable. Messrs. Evans and Co. have just got ready a most complete and useful microscope to accompany their cabinets, and with this a field of study is opened, the interest and charm of which only microscopists can tell.

Messrs. Morson and Son were represented by some photographic views of Melbourne, the Great Seal of Queen Elizabeth, specimens of tobacco grown and manufactured in Victoria, and specimens of hypophosphite of calcium, and iron reduced by hydrogen.

Mr. Balmer, of St. John-street-road, whose manufactures of the sulpho-carbates have attracted considerable attention from chemists and the medical profession, showed some samples of Reaman's extract and plaster of belladonna, prepared from the root. Whether the extract from the root is

more or less valuable therapeutically than that prepared from the leaves, I am not prepared to say; but evidently Mr. Balmer's preparations were elegant specimens of pharmaceutical skill and care. Some large masses of crystallised chloride of gold and nitrate of silver were shown side by side by Messrs. Johnson and Sons, and were examined with all the admiration and respect due to such aristocratic chemicals.

Mr. Robert White showed some North American-Indian pestles and mortars, and Mr. S. Betty a Russian Pharmacopoeia, from a drug-store at Balacalava, and other curiosities. The small museum was occupied by Mr. Kidston, with some counter drawers and show-cases of his workmanship, handsomely finished. A sponge case, of a new design, was very pretty, and would adorn any establishment, while it provided, at the same time, a local habitation for what I may call these vagabonds of a druggist's stock.

Messrs. Wheeler and Croucher, of Callum-street, exhibited the patent Burton tap, which, requiring no brown paper or mallet, screws into a barrel or stone, far through the cork of the tap-hole, saving time, trouble, and waste of beer; also Boume's patent vent valve, entirely self-acting, preventing the escape of gas or aroma, while gently admitting air as required. In connection with the screw-tap, wine, beer, spirits, infusions, etc., can be preserved in good condition much longer than usual, and be drawn off with as much ease as from a cask. A safety case for petroleum and other oils can be fitted with a metal air-valve, which can be screwed down or opened as required, and a tap, from which the oil may be drawn off into a lamp or other vessel, without disturbing the can, or requiring the intervention of a filler, and reducing the risk of an accident.

The service of plate intended for presentation to Mr. Sandford was conspicuous in the library, and in the Chemical Museum was the complete set of metric decimal weights and measures, as used in various trades, late presented by Dr. Atfield. The Professor has yet a long work before him to prove to the shopkeepers of this country that the adoption of a system, not, perhaps, so perfect as it might be, would be attended by any advantage to weigh for an instant with the enormous inconvenience which would be the result of an abolition of our present system, conglomerate as that may be. An hour or two's study is sufficient for anyone to become acquainted with the relative values of the metric and our own weights and measures; and if any reader should desire such study, let me refer him to an excellent exposition of the subject by Mr. J. C. Brough, which appears in the *Chemists' and Druggists' Almanac* for 1868. Scientific men should reflect that, for the sake of establishing an equality which would never be perfect, and the advantages of which are almost entirely fanciful, they propose to plunge a whole nation into perplexity, and would interfere with the comfort, and perhaps shorten the lives of several millions of their fellow-countrymen and countrywomen to at least three generations.

In the Laboratories, Messrs. W. and J. Coleman and Co. exhibited some casks prepared by Scally's paraffin process, and thus rendered impervious to water and air, as described in a recent number of the CHEMIST AND DRUGGIST.

Messrs. Dows, Clark, and Van Winkle supplied their ice cream beverages, now so well known and so popular; and Mr. Grant showed in action his new soda water machine for manufacturing aerated waters, and for filling syphons and ordinary bottles therewith. His apparatus is very compact and well made, and the filling process is ingenious as well as safe and speedy. Some specimens of glucose, and a model of the "Convertor" and steam boiler, used in its manufacture, were shown by Messrs. Manbie and Co., of Spitalfields.

This completes my notes, taken, I am sorry to say, with a sad want of system, though not without a certain amount of care, to present, as far as possible, the chief pharmaceutical features of the evening's *conversazione*. You and your readers will, doubtless, be weary of my comments, though I am confident that all who interest themselves intelligently in their business would be pleased to enjoy a visit to this carefully-collected and admirably-arranged exhibition.

THE ANNUAL MEETING OF THE PHARMACEUTICAL SOCIETY.

CONTRIBUTED BY A MEMBER.

OUR annual meetings are generally pleasant, and are always exceedingly orderly, and must be a great relief to any among us whose experience of such gatherings may have been obtained from a too intimate acquaintance with certain joint stock companies. Indeed, one is sometimes perversely inclined to sigh for a little gentle excitement in the shape of a row to break the almost too monotonous flow of unanimity and congratulation. But the most captious critic would have no chance here. In the first place, he would hardly be able to find any substantial grievance to attack; and if he did, he would certainly have all his venom taken away by the urbanity and co-operative willingness which he would be sure to meet with from the president and council. It need not be supposed that I am by any means a blind admirer of all things pharmaceutical, regarding the Society as a little nucleus for the millennium, as some members of my acquaintance seem to do; but every intelligent observer must admit that the continued success and remarkable development which has been experienced by this Society has been largely due to the tact and ability and good-feeling which has always characterised its management.

The twenty-eighth anniversary was not likely to differ from its predecessors in point of congratulatory eloquence from the council to the members, and back again. Indeed, the events of the past year have been such as to justify some exuberance on the part of those who have so long desired and so earnestly laboured for the honour and advantage of being interfered with by law; and these constitute such an enormous majority that those who were once conservative enough to declare for free trade, even in physic, are now decidedly nowhere. Mr. Sandford is an excellent captain—at least, in smooth waters; and that proviso shows me that in this case my metaphor has already broken down. A captain has no control over the storm which may overtake his vessel; but the president of a society shows his ability rather by keeping out of tumults than by getting out of them. His opening speech on this occasion reflected the general character of his administration, evincing as it did, a desire above all things to advance the interests of all chemists and druggists, and not to confine that advancement to any one section. His concluding appeal on behalf of the Benevolent Fund, which has now reached the long-hoped-for sum of £10,000, was worthy of him also, for in this he has always manifested a particularly lively interest. After his speech, the secretary read the Report, which, as I have hinted, was most satisfactory in its record of work accomplished, in its statement of our present position, and in the vista of future prospects it disclosed. Incidentally it was stated that during the last three or four months of 1868 the registrar was favoured with communications—of course, chiefly in connection with the new Act—averaging about a thousand a week. A fair share

of work that, even for Mr. Brembridge; and country members will be glad to know that that gentleman still appears "game" for another dozen Pharmacy Acts.

Mr. Wilson, of Sheffield, moved the adoption of the Report, and this motion was seconded by Mr. G. S. Pedler, of Fleet-street, who indulged rather freely in the rhetorical style of eloquence which, it may be presumed, was imported from the Common Council of London, of which honourable body Mr. Pedler is a conspicuous member. This gentleman has great faith in the destiny of chemists and druggists. He believes that they are to be regarded as the most important and useful class of men in the kingdom, and he is anxious to impress on younger aspirants to this fellowship the duty of making success in business a consideration secondary to the value which their acquirements may be to society. Would not the Lord Mayor and Corporation regard Mr. Pedler's first proposition, of the unparalleled importance of our body, as somewhat traitorously to the dignity of the City Council, if they should hear of it? A few more complimentary speeches followed, among which a suggestion by Mr. Andrews was worthy of remark, viz.: that in the interests of education the Pharmaceutical Society might establish schools, especially adapted for the training of boys destined to be chemists and druggists; and though I am inclined to regard this as quite apart from the duties of the Society, I am tolerably confident that, if well conducted, it would be a very profitable private speculation.

Mr. Collins next introduced an interesting discussion by referring to the modified examinations, re-petting which he stated that some of the "plucked" candidates had complained that their defeat was due chiefly to an insufficient acquaintance with Latin; and, in appealing for a little mercy to be shown to such, he asserted that nine-tenths of the chemists' assistants were so imperfectly educated in that language, that they could not be expected to read a prescription correctly with the terminations, and to translate the same into respectable English; and, unless I mistook Mr. Collins's meaning, he regarded this as a rather unimportant part of a chemist's knowledge. Mr. Davenport, who is the usual examiner in Latin, promptly satisfied Mr. Collins and the meeting, that in this respect every consideration is shown towards the "modified" candidates, and even in the higher examinations no reasonable man would regard the classical standard as in any degree too high. Surely, however, we must regard a very little knowledge of this language, under present circumstances, is a very dangerous thing in a drug establishment; and one would hardly care to venture one's life with a dispenser who would scarcely recognise *paregoric*, if prescribed under its full Latin name. The arrangement of the gold labels in some country shops is often somewhat amusing, and it is not at all an outrageous presumption to imagine an apprentice, who had been trained in one establishment, and whose acquaintance with Virgil's tongue had been derived only from his study of those labels, enter another with a simple faith that *Tinct. Opii* meant corks, or boxes, or pearl barley, just as it might have pleased the vagaries of the labeller, when he arranged his stock of formidable-looking titles. Setting aside all consideration of those assistants, whose possibly small opportunities should certainly be taken into account, I cannot leave this subject without expressing a very strong opinion that those who aim at the honorary distinction of pharmaceutical chemists, ought to be possessed of some classical attainments, not merely on account of the essential nature of these, to some extent, in his business, but more because they would indicate a certain proficiency in general education, which it seems to me should belong to every man who receives a distinguishing title of any value

from any educational body whatever. If I thought Mr. Collins's calculations were anywhere near the mark, I should say there was not only an opening, but an absolute necessity for such schools as I have referred to above. Mr. Rimmington, of Bradford, followed with a gentle hint that the examiners might sometimes be tempted to tease young men with catch-questions, and thus unfairly jeopardise their chance of success. Mr. Squire, Mr. Deane, and Mr. Mackay, of Edinburgh, representing the examining bodies, replied in turn with perfect good humour, and all strongly repudiated any desire except to test in the most practical manner the knowledge actually possessed by candidates. Perhaps I may be allowed to add my own humble testimony, from experience, to the same effect. I cannot believe that any candidate, successful or otherwise, can leave the examination room without a high degree of respect for the ability and impartiality of those gentlemen who have been "analysing" him—an expression which fairly conveys the character of their examination. This discussion was wound up by Mr. Haselby, who rather vaguely described himself as "from Yorkshire," and who strung together a number of shrewd remarks on a variety of topics in such a racy and humorous manner as to keep the meeting in a continual roar of laughter. His personal reminiscences, especially of Mr. Deane, and the way the students used to "gammon" him at the examinations, were particularly amusing; but I will not attempt to reproduce them.

About this time, a smart hail-storm rattled on the roof of the lecture theatre, and simultaneously, Mr. Breton commenced to read a paper which he had prepared on the subject of patent medicines, which occasioned what I may describe as a slight scene. Before he had concluded the exordium of his subject, Mr. Mackay rather astonished the assembly by asking if Mr. Breton was not out of order in reading a paper at an annual meeting, which, he contended was only in place at a monthly meeting; and the members so generally coincided with Mr. Mackay, especially when he pointed with grim humour to Mr. Breton's mass of paper, that this gentleman was induced to give way before the phalanx opposed to him. Mr. Mackay was unquestionably right, and did good service in preventing the establishment of a precedent for destroying the character of the annual meeting, which should be kept solely for the purpose of transacting the general business of the Society. But I should certainly be glad to see a little larger infusion of these business discussions among the monthly winter meetings.

After this gale had passed away, Mr. Reynolds, of Leeds, advanced a proposition which met with very considerable favour from the members assembled. He and his party are anxious to arouse more interest among the members generally in the proceedings of the Council, and, in order to accomplish their end, he suggests the publication of the minutes and votes of each meeting, so that the pharmaceutical politics of individual councillors may be known to those who have to elect them. My report has already too far extended itself, and I shall not, therefore, attempt to follow the discussion which took place; but I may note that the general feeling was not only strongly in favour of this innovation, but a desire was clearly evinced, though no one had the boldness distinctly to propose it, to have, in addition, a general report of the discussions which take place in that Chamber of Representatives. Whether this would be altogether wise or not, I do not pretend to say; I only know that there is a universal tendency in the human mind—or I should say, an innate enjoyment—which even a pharmaceutical education cannot altogether erase, to enter into the consultations, and to interest itself in the opinions and

differences of those whom we know. For my part, I can hardly see that the Council would be at all scandalised if independent reports of their proceedings were published in the *CHEMIST AND DRUGGIST* and the *Pharmaceutical Journal*. When Mr. Reynolds's resolution was put to the meeting, three hands were held up against, the most notable among the dissentients being Mr. Joseph Ince. One would have liked to have heard his reasons for being in opposition on this occasion, knowing that Mr. Ince is always as able as he is fearless in the expression of his opinion.

A pleasing matter concluded this meeting, being in effect the presentation to the Society of a handsome gift from Mr. Hills. This gentleman has had an excellent likeness of his late partner, Mr. Jacob Bell, drawn by Sir Edwin Landseer, engraved by Mr. Thomas Landseer, and the various impressions are now ready for sale, the gross proceeds of which, free of every expense, he generously devotes to the Pharmaceutical Society. Artists' proofs on India paper are to be sold at three guineas, and other impressions at two guineas and one guinea each. The eminence of the artists is a guarantee of the fidelity and quality of this portrait as a work of art, while the subject is one which will command the sympathy of all those to whom the late distinguished president had made himself so dear, and with whom he has left a memory which seems to grow brighter as years pass by. Mr. Mackay interposed with a suggestion which was singularly well-timed, and which we have no doubt will be carried out—that Sir Edwin Landseer should add the favour of affixing his autograph to each of the three guinea copies; and this, if agreed to by the artist, must materially increase the value of the portraits. After a few votes of thanks, the meeting was adjourned, assembling again an hour later to present to Mr. Sandford the magnificent service of plate which was to testify to the gratitude of the trade for the President's patient and persevering, and, at last, successful labours in the establishment of pharmacy as a profession on a firm basis.

REPORT OF THE COUNCIL.

At the close of a very eventful year, the Council have now to submit to their constituents the customary Report of the proceedings which have occupied them since the last annual meeting. In May, 1868, mingled with the hope of success in the matter of pharmaceutical legislation, there was much reason to fear that the House of Commons then sitting would end its existence without performing the task recommended to it by the Committee of 1865. It is true the Government of the day were favourably disposed towards the Pharmaceutical Society, and fully acknowledged the necessity of protecting the public by placing restrictions on the sale and dispensing of poisons; indeed, their very favour had been, in some respects, a difficulty, inasmuch as it remained a question, during the early part of the session, whether the Bill framed by your Council should be introduced to Parliament by some member of the Government or otherwise; and when, owing to pressure of other business, the Home Secretary was compelled to decline taking charge of it, the comparative leisure of the sittings before Easter had passed away, and it required extraordinary activity and watchfulness on the part of your Council to urge it on. Fortunately, Earl Granville, whose assistance had been sought in a previous session, now consented to introduce the Bill in the Upper House, and to him the Pharmaceutical Society, the Chemists and Druggists of Great Britain, and the public generally, are deeply indebted for the success which, on the 31st of July, crowned the labour commenced twenty-seven years previously by Jacob Bell and the founders of this Corporation. It is not for your Council in this Report to speculate on the ultimate result of this success; they have more particularly to deal with the proceedings of last year, and are able to point with much satisfaction to the effect already produced, and made manifest in the balance-sheet just read to you; by this it appears, that although no advantage was taken of the opportunity which

seemed to offer of requiring even a small fee on registration, yet the increase in the ordinary receipts of the Society during 1868 was more than sufficient to meet the great expenses entailed in carrying out the provisions of the new Act, and that increase is evidence, not merely of financial prosperity, but more notably of educational advancement, which must ever be regarded as one of the prime objects of this Society. In every class the candidates for examination have increased considerably, and a still greater augmentation will be seen in the number of students attending the lectures and laboratory. Of the sixty benches which the laboratory contains, very few are now unoccupied, and the number of entries during the present session more than doubles that of any previous one since the new laboratories were built. Doubtless, this may to some extent arise from the impossibility of entering the business hereafter without first submitting to examination, but whether that, or a desire to obtain knowledge, attract students to the laboratory, the effect will be the same; and the chemists and druggists of the present time will be succeeded by men better qualified to uphold pharmacy as a profession, as well as practise it as a trade. It is gratifying to see, by the amount of "arrears" paid up, that many seceders have put themselves again within the pale of the Society.

On the debit side of the account there are no items particularly calling for attention. The labour thrown on the secretary by the passing of the Act seemed, for a time, overwhelming; and when it is stated that for the last three or four months of 1868 he received, on an average, a thousand letters a week, it will readily be conceived that more help was absolutely required in the office. It may, perhaps, be remarked, that nothing was added to the investments on the "General Fund" account in 1868, but it will be seen also that a large balance was left in the treasurer's hands, and since Christmas a considerable sum has been invested.*

It is the duty of this Council now to publish annually a Register as well of chemists and druggists as of pharmaceutical chemists. Under the new enactments all chemists and druggists must cause their names to be placed on the Register. The compilation of that Register, which lies on your table, has been a work of great labour, anxiety, and expense; hereafter it must appear in the month of January, but it was impossible to prepare the first copy of such a volume by so early a period in this year, as applicants for insertion were given until the 31st of December to send their notices to the Registrar, and it was not, as it will in future be, a mere matter of correction and addition. While the Registrar had, on the one hand, no desire to exclude illiberally men who had really been engaged in the trade prior to the 31st of July, 1868, he had, on the other, a plain duty imposed on him by the Act, and a neglect of that duty would have rendered him liable to fine or even imprisonment. It is quite possible that some members of this Society who may take that book home for examination, may find names therein of persons who have no claim whatever to be classed as chemists and druggists,—the indispensable qualification is, that they must have kept "open shop for the compounding of the prescriptions of duly qualified medical practitioners." Certainly no names are inserted regarding which the required certificates have not been given by "duly qualified medical practitioners," or "magistrates," but sometimes the signing of a certificate is regarded as a mere matter of form. Many false representations have been sent in, carelessly rather than criminally, so far as the medical practitioners, or magistrates, are concerned, which, on inquiry, have been withdrawn; there may have been others, perhaps, presenting no feature suggestive of erroneous description, which have secured admission for the applicants. If so, the remedy lies in an appeal to the Council, who have the power to erase names improperly inserted, as well as to insert names improperly excluded, and as much has been done by the Legislature for the advancement of this Society, it becomes the duty of every member honestly to assist in protecting the public by purging the Register of persons who have no right to be on it.

Consequent on the Pharmacy Act of 1868, the bye-laws of

* According to the general financial statements the receipts for 1868 amounted to £4,096 17s. 3d., and the exports to £4,390 17s. 1d., leaving a balance of £2,206 4s. 1d. in the treasurer's hands.

the Society required revision and additions, to enable the Council to carry out the new enactments. The altered, work was very carefully considered, and will, it is believed, work satisfactorily. Already many Chemists and Druggists claiming admission under the provisions of the 18th section have been elected members of the Society. Regarding the Board of Examiners, as destined hereafter to stand in a more responsible relationship to the public, the Lords of the Privy Council suggested certain modifications in its constitution; a limitation as to the number and age of its members, and their disassociation from the Council, except as concerns the president and vice-president, who will always be *ex officio* members of the Board. These restrictions are undoubtedly right in principle, and, as they will not come into operation before 1871, will probably be unattended by any inconvenience. It will still be for the Council to control the regulations of the Board of Examiners, and to affix its seal and signature to all diplomas. In future, a man who passes the Major Examination, and is consequently registered as a pharmaceutical chemist, will at once receive a diploma.

Among other alterations, it has been necessary to have more frequent meetings of the Board of Examiners, and the labour of the gentlemen composing that Board has been greatly increased. When it is stated that nearly 3,000 assistants have established their claim, under Sect. 4, to the "Modified" Examination, that they cannot be taken at the rate of more than fifty in a day, and that it is scarcely possible to hold more than two such examinations per month in addition to the ordinary meetings, it will be seen that there is much heavy work in store for the Board.

Feeling that the introduction of the word "immediately" into Schedule B by some unknown hand, in the Pharmacy Act of 1868, inflicted a hardship on many assistants who correspond exactly with the description given in Sect. 4 of persons entitled to registration as chemists and druggists on passing a "Modified Examination," your Council strongly represented to the Government the desirability of removing the grievance. In consequence, thereof, the Lord Advocate added a clause to Lord Robert Montagu's Amendment Bill, which was read a third time in the House of Commons on the 13th ult., declaring that if the three years' service had expired at any time prior to the 31st of July, 1868, it should be deemed sufficient. The rest of the Amendment Bill is intended to relieve medical practitioners who consider they are insufficiently described by the word apothecary, and veterinary surgeons in Scotland, who hold the diploma of the Highland and Agricultural Society.

In the session of 1868, an Act was passed to regulate the sale and keeping of petroleum. It is probable that if the attention of the Council had not been so entirely absorbed by the more important Pharmacy Act, some of the absurd and vexatious provisions which this Act contains would never have become law. There is reason to believe that the framers of the Act did not contemplate such restrictions on the sale and keeping of small quantities of benzol as are now, by a strict interpretation of the Petroleum Act, enforced.

On representation being made to the authorities at the Home Office on the subject, Mr. Liddell at once promised to use his exertions to obtain an alleviation of the inconvenience; and a Bill to amend the Act of 1868 was accordingly introduced and read a first time in the House of Commons on Thursday last.

There is another question now before Parliament in which members of this Society, and all Chemists and Druggists, are interested, namely, "A Bill to amend the Adulteration of Food or Drink Act (1860), and to extend its provision to Drugs." A similar Bill was prepared, but not proceeded with, last year; but it will be remembered that, at the instance of the Privy Council, a section (the 24th) was inserted in the Pharmacy Act, bringing dealers in drugs under the operation of the Act of 1860. Your Council could offer no valid objection to this introduction, it being one of the great objects of the Society to promote purity in drugs; still, considering that many articles used in medicine are brought from foreign markets, and most ingeniously adulterated before coming to this country, they secured the insertion of words to enable the retailer to prove his ignorance of such adulteration; and, for the same reason, it becomes necessary now to watch carefully any further legislation on the subject.

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The Council cannot close this report without strongly urging the necessity for continued or indeed increased activity on behalf of the Benevolent Fund. It is true the donations, subscriptions, and investments of 1868 far exceeded those of former years; it is true also that since Christmas the invested capital has reached the long-talked-of sum of £10,000; but it is equally true that the Pharmacy Act of 1868 opened a much wider field for the distribution of the fund, and consequently the standard which was deemed sufficient when none but persons actually connected with the Society could receive relief will bear a very different proportion to the requirements now that "all persons who may have been, and have ceased to be, members or associates of the said Society, or who may have been duly registered as pharmaceutical chemists or chemists and druggists, and the widows and orphans of such persons" shall be eligible to receive assistance in case of need.

There are already eight annuitants on the fund, and holding to the principle that it is unsafe to grant annuities to a larger amount than the annual interest on capital, your Council sincerely trust that the same benevolent spirit which has been growing from year to year since the system of annuities was commenced in 1865 will still actuate all who have the means to assist their poorer brethren, and that future Councils will never be compelled by want of means to reject worthy applicants for relief.

PRESENTATION TO MR. SANDFORD.*

ON Wednesday, May 19th, a very numerous gathering of the members of the Pharmaceutical Society took place in the Lecture Hall of the Society's house, Bloomsbury-square, to witness the presentation to George Webb Sandford, Esq., President of the Society, of an elegant assortment of plate, value 200 guineas, as the first instalment of a testimonial, which has been raised in commemoration of that gentleman's indefatigable exertions in connection with the passing of the Pharmacy Act; the balance of the fund raised, which amounts in the whole to upwards of £500, being devoted to the painting of a portrait, by an eminent artist, of Mr. Sandford. The plate, supplied by Messrs. Lambert, of Coventry-street, consists of a set of four side-dishes, with covers and warmers; four candlesticks, a case of fish knives and forks, and a large salver, bearing the following inscription:—

"PRESENTED, WITH OTHER PLATE, VALUE 200 GUINEAS, TO GEORGE WEBB, SANDFORD, ESQ., PRESIDENT OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, IN GRATEFUL ACKNOWLEDGMENT OF HIS UNWEARIED EXERTIONS IN THE CAUSE OF PHARMACY, AND IN COMMEMORATION OF THE PASSING OF THE PHARMACY ACT OF 1868. 19TH OF MAY, 1869."

The chair was taken by FREDERICK BARRON, Esq., Chairman of the Testimonial Committee, who, in opening the proceedings, said he felt that a great honour had been conferred upon him, in selecting him for the position which he then occupied. Then, turning to Mr. Sandford, he said:—Mr. President, I have been requested by the subscribers to this testimonial fund, which I think amounts to something over £500, to beg your acceptance of this service of plate. There is to be a portrait, which I am sure, from the gentlemen who have been selected to make choice of an artist worthy of the work, will be a painting that will represent you very favourably. I now beg your acceptance of this plate, as a feeble recognition of the very great services you have rendered to the members of the Pharmaceutical Society and the whole trade. I am sure that all present fully recognise with me that through your energy and untiring perseverance you have been the instrument in securing the passing of the Pharmacy Act of 1868. We know that your heart has been thoroughly in the work, and that your very bright intellect has been exercised on behalf of all the members of the trade, who will hereafter reap the benefit. I pray that your life may long be spared to enjoy the use of this plate, to see your friends around you, and to tell them how highly you have been respected and esteemed by the mem-

bers of the Society of which you are the highly distinguished President, and by every chemist and druggist throughout the country. I am sure that all members of the wholesale and retail trade, whether absent or present, reflect the sentiments which I feel, and which I have endeavoured feebly to express. May the Almighty bless you here, and reward you in a brighter and better world hereafter.

Mr. SANDFORD then rose, amidst immense cheering, which for a long time prevented his being heard. When silence was restored, he spoke as follows:—Mr. Chairman and Gentlemen. When you spoke of the honour of presenting this plate to me, I certainly thought the honour was all the other way, for I feel it a great honour to receive such a gift at your hands. I must confess that I was greatly surprised, and almost overpowered, by the magnificence of this display. When I first received an intimation from Dr. Attfield that a resolution had been passed at Norwich by the Pharmaceutical Conference, declaring that some public recognition should be made of my poor services, I never for one moment expected that it would assume such a form as this. It is indeed magnificent; I admire it in itself, for "a thing of beauty is a joy for ever;" yet it is not for its beauty that I principally value it. I value it as an expression of your feeling, as a confirmation of my own opinion, that the Act which I have endeavoured, with the assistance of others, to obtain, will be for the benefit of our body generally. There are certain ideas associated with it which will always be present to my mind. It will not be necessary for me to tell my friends that I am respected; that plate will speak for itself. It is inscribed on every piece of that plate, just as legibly as if by a graver, that I have your approval of the course which I have adopted, and your confirmation of the opinion that the Pharmacy Act will work well for the general benefit. But, sir, I claim no separate merit for this work. In the last article which was published in the *Journal* in Jacob Bell's lifetime, I find this:—"All that remains to be accomplished is the more direct recognition of the Society by Act of Parliament, by such an extension of its powers under proper control, as may enable it to bring to an early and successful completion the work which has already made satisfactory progress, by which means pharmacy will be fully established in its proper position, in the hands of persons duly qualified and entitled to the confidence of the public." That, gentlemen, was, I believe, the last article written by Jacob Bell, and that has been my text. I have stuck to it, even when some of my friends have thought me obstinate. I determined, if possible, to carry it. You may remember that the Medical Council put forth a proposition that dispensing chemists should be under the control of that body. I took it as a compliment that the Pharmaceutical Society was recognised in this proposition, but the great fact was, that it was put forth by such an authority, that it was necessary for the good of the public, that pharmacists should be educated and well-qualified men. You know, gentlemen, that at that time we were not altogether united, there being several points on which the Pharmaceutical Society was not in unison with chemists outside. It has been one great object with me to remove those differences. You know that when we brought forward our Bill in 1865, we failed; and why did we fail? Simply because there was not union between the chemists and druggists, who were to be benefited by that Bill. It was one of my chief objects to remove that difference, and I think I did remove it; and I see here now men who at that time were called outsiders. We have given up the term now; there are no outsiders now. I have been assisted very greatly in all this by the members of the Council, and, therefore, although you give this testimonial to me, your thanks are equally due to them. I disclaim any special merit of my own, but I happened to be in that position which made me, as it were, the leader of the Council, they having done me the honour to elect me their President; and it is to that circumstance that I am indebted for this magnificent testimonial. I do not know how sufficiently to express my thanks; but I am told I shall have to speak again by-and-by, and then I may be able to say—as men do sometimes after dinner—"This is the happiest moment of my life." I do not like to indulge in extravagancies, but there certainly never has been a moment in my life when I have felt prouder than I do at present.

Mr. MORSON proposed a vote of thanks to the Chairman.

* From the *Pharmaceutical Journal*.

for his ability in presiding on the happy occasion; which was seconded by Mr. DEANE, and carried by acclamation.

The CHAIRMAN briefly returned thanks for the compliment, and the meeting then separated.

COMPLIMENTARY DINNER TO MR. SANDFORD.

THE above event, which has been looked forward to for some time, took place on Wednesday evening, May 19th, at the Freemasons' Tavern, and passed off with great élan, the number of guests being 103. The chair was occupied by Frederick Barron Esq.; Mr. Evans, Vice-President, and Mr. Hill, Treasurer of the Pharmaceutical Society, officiating as Vice-Chairmen, and the post of honour on the right of the Chairman being occupied by Mr. Sandford.

The toast of the evening, "The Health of George Webb Sandford, Esq." was proposed by the Chairman, who called attention to that gentleman's great services during the six years of his Presidency, and especially the labours which had been crowned by the passing of the Pharmacy Act. In replying, Mr. Sandford gracefully referred to the support he had received from the Council, and also from many gentlemen who were not members of the Society. In the course of his speech he reminded his fellow-members that there was need for caution and moderation in their proceedings, in order, on the one hand, that no one should be able to complain of illiberality, and on the other that the public should have no ground for complaining that the Pharmaceutical Society did not do their work well and honestly.

Mr. Sugden Evans proposed the "Medical Profession," and Dr. Alexander Silver responded. Mr. Randall, of Southampton, gave the toast of "Success to Pharmacy," and Mr. Deane, in obedience to a general call, referred to the principles which should regulate the work of the pharmacist. Mr. Joseph Ince next proposed "Success to Pharmaceutical Education," associating with the toast the name of Dr. Redwood, who responded. The Chairman, the Treasurer of the Testimonial Fund (Mr. Otridge), and the Honorary Secretaries of the Fund (Messrs. Curteighe, Matthews, and Mackay) were called on in turn to acknowledge toasts with which their names had been coupled by Messrs. Bottle and Sandford. Mr. Haselden proposed "The Committee," which body found an eloquent representative in Mr. Howden. Mr. Pass proposed "The Visitors," Dr. Spurrell and Mr. Flux responded. Mr. Mackay, in an admirable speech, proposed "The Vice-Chairmen," Mr. Evans and Mr. Hills; and the latter, in replying to the toast, took the opportunity of proposing the health of the indefatigable Secretary of the Society, Mr. Brembridge.

Abstracts of Foreign Papers.

TURPENTINE AN ANTIDOTE FOR PHOSPHORUS.

THE frequency with which phosphorus has proved the poisonous agent in criminal or accidental homicides, as proved by statistics, has impressed M. PERSONNE with the desirability of discovering an antidote, upon the efficacy of which reliance could be placed. With this object he has made certain experiments; an account of which he has contributed to the *Journal de Pharmacie et de Chimie*, and in accordance with which he proposes essence of turpentine as the required antidote. He was led to select essence of turpentine, as the subject of his experiments, on account of the following considerations:—"1st. It has been long known that essence of turpentine, as well as other hydrocarbons, cause phosphorus to lose its property of becoming luminous in the dark, of emitting fumes, one may say of undergoing combustion at low temperatures. 2nd. In certain lucifer-match factories the workmen have been protected from the effects of the vapour of phosphorus by carrying a small open vessel containing turpentine on their chest, in close proximity with the mouth and nose. 3rd. M. Audant had recently published a case of attempted suicide by means of lucifers, in conjunction with which the

unhappy victim had swallowed a quantity of turpentine, as a means of hastening and rendering his death more certain, but the effect of which was to cure him."

The experiments were made on fifteen dogs, as far as possible, chosen of uniform size and strength; these were divided into three classes. To the first five a dose of phosphorus was given alone; to the second five a dose of essence of turpentine was administered one or two hours after the phosphorus; and to the third series of five the remedy was administered immediately after the poison. The phosphorus was administered in a form most favourable to its rapid absorption, and, consequently poisonous effects; the essence of turpentine was employed in a dose of 150 grains, made into an emulsion with yolk of egg. The whole of the first series died; of the second series one died, but all were ill and exhibited the same symptoms as those of the first series; of the third series one died, the others suffering but slightly. The author gives certain reasons for attributing the death of the two dogs of the second and third series to other causes than the actual failure of turpentine as a remedy.

M. Personne cannot explain the remedial action of turpentine as similar to that of ordinary antidotes, which, in general effect the object in view, by forming insoluble or inactive combinations with the poison; his explanation is as follows:—"Phosphorus kills by preventing the *hamatosis* of the blood, which it deprives of its oxygen rapidly if its absorption into the blood is rapid, slowly if it is slow.* In the first case death soon occurs, it is a true case of asphyx; in the second it is slower, and causes the effects due to limited *hamatosis*. Essence of turpentine absorbed into the blood appears, therefore, to impede the combustion of the phosphorus in the blood, in the same way that it prevents its combustion at low temperatures in the air; it neutralizes its property of depriving the blood of the oxygen which is necessary to it; and hence causes it to be eliminated from the system without having caused any disorder during its passage.

DETECTION OF IODINE IN BROMIDE OF POTASSIUM.

As medical men are of opinion that the presence of the smallest quantity of iodine in bromide of potassium might modify, to a considerable extent, the action of the bromide, M. LEPAGE considers that it becomes a matter of conscience for the pharmacist who does not himself prepare this salt, to submit the commercial article to such a test as will demonstrate its complete freedom from iodine. He accordingly contributes to the *Union Pharmaceutique* the details of a process calculated to detect its presence in small quantities, of which he has availed himself for more than two years, and which he thinks will replace the iodic acid, and chloride of palladium reactions with advantage, inasmuch as these two re-agents are of too high a price to be generally adopted by pharmacists. The *modus operandi* is as follows:—

"Dissolve 10 grains of the bromide in 50 grains of distilled water, add about half a grain of iodine in fine powder, and agitate. If the bromide contains even less than one per cent. of iodide the solution instantly assumes a yellow colour of greater or less intensity; if it is free from iodide some instants will elapse before the solution acquires a faint yellowish, green tint, which increases gradually, inasmuch as bromide of potassium dissolves a little iodine in course of time." This method of testing, which is based on the well-known fact that iodine dissolves in iodide of potassium, will enable the practised operator to ascertain

* M. Personne has demonstrated the presence of phosphorus in the blood in cases of poisoning.

the purity of a sample of bromide of potassium with ease and certainty.

OZONE A CAUSE OF THE EXPLOSION OF PICRATE OF POTASSIUM.

The *Moniteur Scientifique* is of opinion that ozone will relieve M. Fontaine of the charge of imprudence made against him in consequence of the explosion of picrate of potassium, which lately occurred on his premises in Paris. MM. Césaris and Houdon have made researches which have demonstrated the fact that ozone has the peculiar faculty of determining the explosion of the different picrates, and that the amount of ozone necessary varies with the picrate; from picrate of sodium, which explodes when the ozonometer marks 40 millimetres, to the double picrate of urea and iron, which explodes at 350 millimetres. Picrate of potassium decomposes when the ozonometer marks 45 millimetres. The amount registered at noon, in Paris, on the day of the catastrophe was over 51 millimetres, the highest amount yet observed.

THE PHILOSOPHY OF FOOD, CONSIDERED IN RELATION TO LIEBIG'S THEORY OF LIFE, HEALTH, AND DISEASE.*

BY MR. W. WILLMOTT.

GENTLEMEN,—A twelvemonth since I had the honour of reading to the members of this Association a paper on the "Value of Medicine in the Treatment of Disease." At the conclusion of the meeting then assembled, it was proposed by a gentleman present that I should publish this paper, and the proposition having been seconded and fully carried, I felt it to be my privilege, not less than my duty, to respond accordingly to the feeling thus expressed. The editor of the *CHEMIST AND DRUGGIST* did me the favour to insert the paper, in full, in the June number of his very valuable journal. Being thus before the public, it was reviewed at some length by the *Homœopathic Review*, and largely quoted from by a medical paper of high standing in America. It also received favorable consideration in other quarters of a like influential character. I draw your attention to this circumstance because it may possibly be within your recollection that, in stating the opinion of the age, medicine was therein referred to as holding a subordinate position in relation to food, which latter was set forth as the agent destined to accomplish great things, and the "principle" required to supply the necessary force, or vitality, to the weakened system. Well, gentlemen, since that time, twelve months have passed away, and suffering humanity has not yet "thrown physic to the dogs." On the contrary, remedies continue to be sought after and adopted, and medicine is still greatly relied upon for its power in combating disease.† But granting for a moment the assumption with regard to food to be correct, it becomes an all important point to us as to the *modus operandi* by which so great an achievement is to be effected: and the way and the therefore of the question will be well worthy our earnest consideration. In order that we may fairly estimate its probabilities either in one direction or the other. But apart from this, food itself is so important to us individually as members of a large community—so important, indeed, to all mankind—that a good understanding of the mode, or manner, by which its great purposes are brought about, will strengthen our position, so

to speak, and impart to us, to some extent, that knowledge of ourselves, which will scarcely fail to admit of useful application as regards the daily experience with which we are, or may be, more immediately concerned.

Now man is brought into existence, and appears upon the scene of life, in obedience to certain plans (respecting which we are entirely ignorant) involved in the mighty scheme engendered by creative wisdom. But whether he will remain there, or how long, is purely conditional. From the moment of his birth he is surrounded by conditions which are everywhere destructive in their tendency. If the vitality he possesses be sufficient to resist, overcome, and subdue these destructive conditions, then, to all intents and purposes, he lives; but if not, then most assuredly he dies. Our existence, therefore, is conditional. Obedience is imperative. We are, in fact, governed and controlled by certain fixed and immutable laws which cannot be broken with impunity. We may not feel satisfied with this state of things, for we are apt to think that, if the matter were left in our own hands, we could do better. We imagine that we could create a more perfect world, and idealise a happier and more congenial method of procedure. We see around us punishment and crime, suffering, disease, and death; and we think that such things ought not to be. But think as we may, certain it is we can alter nothing. We may ask why and wherefore these things are, and we shall receive no reply. We may shout ourselves hoarse with complaining, and we shall hear only the echo of our own voices, quivering for a moment on the eternal air, and then dying slowly away into mockery and silence! No. Far better accept the conditions as we find them, and endeavour, to the greatest possible extent, to render them subservient to our own good. Much, very much, may be done in this way.

But what is the process we see going on everywhere around us, and extending itself, for aught we know, to the entire universe of matter? Simply a process of decay and renewal. Old Father Change is abroad in the world for ever shouting his hoarse cry:—

"Deaths and weddings—deaths and weddings,
Useless old things 'a'en for new;
Something here for everybody,
Passing through!"

And so it is everywhere. Matter of whatever kind is constantly undergoing change. All is moving—nothing still. Every individual object, animate or inanimate, finite or infinite, is slowly, but surely, fulfilling the intentions of some great cause, as wise as it is real, and as mysterious as it is incomprehensible!

In the midst of all this it must not be forgotten that the one condition which applies more especially to ourselves, as living agents, is that which involves this process of constant decay. We are continually wasting away, and must, therefore, find some source of renewal, or the harmony of forces, in obedience to which we continue to exist, will be broken up, and we shall, ere long, cease to live. This source of renewal, we discover in food, and nature has supplied us with the apparatus necessary to apply such food in a very efficient manner for the accomplishment of the purpose intended. We eat that we may live; and the importance of the process thus involved will justify the best attention that we can conveniently bestow upon it. And here let me state that it is not my purpose this evening to place before you the science of food for that is a very wide subject indeed.* Nor is it my intention to lay down plans of diet, or individualise the various articles of daily consumption with a view to their relative value in the animal economy. Rather is it my desire to take a general survey of the subject—look at it, in fact, in its theoretical light, and to ascertain, as far as may be, how it affects us from the three points of view social, physical, and moral. For this purpose it will be well, in the first place, to take a rapid glance at the physiology of food as it is manifested in the processes of digestion, assimilation, and nutrition.

The parts more immediately concerned in these processes are—the mouth and tongue, the pharynx, the œsophagus, the stomach, the small and large intestines, and the heart, lungs, and circulatory apparatus. All these parts are in

* Read to the members of the Chemists' Assistants' Association, May 20th, 1899, and published by request.

† This is well shown in the unwelcome fact which has just come to light that half the people of this metropolis obtain medical relief, as paupers, from the Hospitals and Infirmarys which are freely open to them. "It is not pleasant to find," says the *Times* of May 10th, 1899, "and we can fully endorse the statement, 'that people living in good houses, receiving fair wages, enjoying many comforts and luxuries, dressing well, taking holidays and outings, indulging in free opinions, and hoping to rise in the world, are not ready to pay for the necessities of life, as medicines certainly are, if they can get them at no price.' Most assuredly it is not pleasant, but it is one of the many drawbacks to a trade, or profession, which may rarely, indeed, find an adequate reward in any material prosperity it can ever command."

* The science of food in its elementary form, may be conveniently and effectually studied at the Kensington Museum, where a popular and systematic arrangement of the whole subject has been carefully carried out.

direct contact with the nervous system (principally the sympathetic) which is itself connected, indirectly, with the brain and spinal cord.

The food, then, having been masticated and sufficiently prepared for the act of swallowing, is forced backwards by the tongue into the pharynx. By the contraction of the pharynx it is sent into the oesophagus, and through the oesophagus it enters the stomach. Here it is subjected to the powerful influence of the gastric juice, a fluid secreted by the subjacent glands for the purposes of digestion. The gastric juice contains a free acid supposed to be lactic acid, but thought by some to be hydrochloric, and a principle called *pepsin* which is a solvent of great power. In order that the food may be brought fully under the influence of this solvent, it is rolled about by the stomach from side to side (a process I may say parenthetically which seems to indicate the very perfection of design) until it is reduced to a pulpy mass called chyme. In this state it passes out of the stomach, through the pylorus or pyloric orifice, into the duodenum. Here some very remarkable changes take place, which, in fact, are very little understood. The bile from the liver and the pancreatic juice from the pancreas mingle with the chyme, and, it is said, separate it into two portions, the one nutritious—the other inutritious. Some physiologists, however, deny this, and state that the whole of the digestible food is absorbed into the venous and arterial systems, where the processes of separation and secretion are duly effected. But, following the older theory, we find that the nutritious portion of the food, now reduced to a milky fluid called chyle, is taken up by numberless absorbents, or lacteals, and thereby conveyed slowly into the circulation. This absorption goes on throughout the whole of the small intestines, comprising the duodenum, the jejunum, and the ileum, and forming a canal twenty-five feet in length, through which the residue is slowly propelled in its tortuous course. The chyle, being thus extracted from the food for the nutriment of the body, is carried by the lacteals to a large duct called the thoracic duct, and thence to the subclavian vein, where it mingles with the venous blood. The blood, at this point, has been the round of the circulation and is returning to the heart highly charged with carbonic acid, resulting from the union of oxygen with the carbon of the food and the decaying material of the tissues. In this state it reaches the heart, carrying with it the chyle received from the lacteals, and, having passed from the right auricle to the right ventricle, it is sent forwards through the pulmonary artery to the lungs. Here an important change occurs. Carbonic acid is conveyed outwards, and oxygen is received in its place, and, thus prepared and purified, the blood is sent back to the heart to recommence the work of nutrition. The heart pumps it out, as it were, through the arteries to every part of the frame, where the metamorphosis of tissue is constantly progressing. In this manner heat is produced, and the required nourishment is provided; and this having been accomplished, the blood returns again to the heart, to be again sent into the lungs for purification as before. Thus is the work of wear and tear, repair and renewal, going on from day to day and from year to year. Complicated as the arrangement may appear to be, it is yet admirably adapted for its purpose; and, seeing that it is so, we must perforce admire the workmanship, and acknowledge the majesty of the source from whence it proceeds. Imitate, or understand it, we cannot!

“For by subtle parts
And viewless atoms secret Nature moves
The mighty fluids of this stupendous world;
By subtle fluids, poured through subtle tubes;
The natural vital functions are performed;
By these the stubborn elements are tamed;
The tolling heart distributes life and strength;
These the still crumbling frame rebuild, and these
Are lost in thinking, and dissolve in air.”

Having, then, taken a rapid glance at the physiology of our subject, we shall be the better prepared to consider it in relation to Liebig's theory of Life, Health, and Disease. It will, perhaps, be better to say with regard to the first of these, the *continuation of life*, because of *life per se*—life in the abstract—we know absolutely nothing. The most we can say of it is that it consists of some force, principle, or power, which is co-existent with our being, and which leaves us when the conditions required for the manifesta-

tion of its presence are broken up. It is not surprising, however, that many definitions and explanations should have been attempted. The ingenuity displayed in some of these, if not positively convincing, is certainly not creditable to their respective authors. For example:—

1. Life is the sum of all its parts.
2. Life is the relation of an *anima*, or soul, to the material world.
3. Life is the result of organization.
4. Life is that which holds matter together.
5. Life consists in the faculty which certain bodies have of enduring for a time, and, under a determined form, attracting unceasingly within themselves parts of the surrounding matter, and yielding up at the same time to the elements, portions of their own substance.
6. Life is an effect produced by the spirit to form and sustain the living organization; acting upon the blood and other parts of the body electrically; electricity being the first or primary agent upon which the spirit acts, and through which the spirit gives motion and power to the physical organization.

There is just one other definition which I will refer to, coming, as it does, from a very advanced thinker of the present age, namely Professor Huxley. This gentleman has discovered the essence of Life and has called it “Protoplasm.” Protoplasm has its origin in the vegetable kingdom. “Plants,” says the Professor, “are the accumulators of the power which animals distribute and disperse. The compounds, carbonic acid, water, and ammonia, supplied to the plant, like the elementary bodies of which they are composed, are lifeless. But when brought together, under certain conditions, they give rise to the still more complex body, protoplasm; and this protoplasm exhibits the phenomena of life.” But lest this statement, being distinctly materialistic, should lead to the doctrine of materialism, the Professor delivers himself thus:—“After all, what do we know of this terrible matter except as a name for an unknown and hypothetical cause of states of our own consciousness? And what do we know of that ‘spirit’ over whose threatened extinction by matter a great lamentation is arising, like that which was heard at the death of Pan, except that it is also a name for an unknown and hypothetical cause or condition of states of consciousness? In other words, matter and spirit are but names for the imaginary substrata of groups of natural phenomena.”

But, however specious this explanation may be (though, in truth, very little is gained thereby), and however plausible the theories we have advanced may appear, we are left precisely in the position we occupied before, and Life itself equally refuses to unfold its nature, or yield up the mystery by which it is so closely surrounded.* In the theory, therefore, we are about to consider we refer to the continuation of life rather than to life itself. This theory, propounded by that clever chemist Liebig, is the one which is most generally received, though objections to it are entertained by some eminent physiologists. It is considered in detail in Liebig's “Organic Chemistry,” but an able writer has presented us with the following summary:—

1. The human body is determined in its configuration by a property inherent with its existence, denominated

* Attempts have been made to resuscitate the bodies of men who have died from suffocation, etc., but without avail. In one experiment of this kind the body, as we are told, was placed upon the table in the amphitheatre forty-four minutes after death. “Six ounces of whiskey were then injected into the bowels, and one gallon of pure oxygen gas was forced into the lungs, and a powerful galvanic battery applied to the medullary oblongate and the pit of the stomach. At the same time the tongue was withdrawn from the mouth, and the body turned from side to side after the method of Marshall Hall for artificial respiration. In four or five minutes a marked change occurred in the countenance; the chest gradually expanded, the eyes opened, one arm was drawn up, and, by means of a stethoscope, contractions and dilatations of the heart were distinctly heard. So evident were the signs of life, that the friends of the dead man exulted over the fact that he really lived. Another gallon of oxygen was introduced into the lungs, and the battery was charged so that the current passed the entire length of the spine, and the artificial respiration continued. For a few moments the signs of life increased, but in a short time disappeared. Nitrous oxide gas was injected into the lungs by an artificial opening in the trachea, made by Professor Duffee, but all to no purpose; and at the expiration of one hour and twenty-five minutes the experiments ceased, and the body was handed over to the friends.” I am not prepared to vouch for the accuracy of this account, but if under such circumstances, the exact conditions attending life could be reproduced, the return of vitality would still be extremely doubtful.

vis vite or *vital force*, but of which, beyond the truth of its presence, we are ignorant.

2. That our existence is dependent upon chemical operations.
3. That the human body is its own laboratory, wherein is generated its own heat.
4. That it is constantly consuming and giving off its own elements: and.

Lastly, That it derives a renewal of the same from the nourishment supplied to it, and the atmosphere by which it is surrounded.

Let us examine these ingenious propositions a little more closely, and deduce from them an outline of the phenomena they are intended to convey.

In order that we may sustain life in the animal economy, we must, of necessity, so to speak, do two things. We must supply the loss of material involved in the metamorphosis of tissue, and we must make good the loss of temperature involved in the evolution of heat. Now observe. To supply the loss of material occasioned by the metamorphosis of tissue, it is absolutely necessary that we should furnish to the body substances analogous to itself in elementary composition; and as nitrogen is the element which is essential to the formation—to use a homely but significant phrase—of “flesh and blood,” it follows that no food from which nitrogen is altogether absent, will, theoretically speaking, be of any use. Such food will be of little service to us for the purpose intended, since, as Liebig states, “the animal body is totally incapable of producing an elementary body, such as carbon and nitrogen, out of substances which do not contain it.” True. But do we not consume many articles of food into which nitrogen does not enter? Yes. What purpose, then do they serve in the animal economy? If they do not contain nitrogen they contain carbon, and this is precisely the element we require for the production of the heat necessary to maintain an adequate temperature in the body. Thus it will be seen that by the supply of nitrogen in the food we make up for loss of material, whilst by the supply of carbon from the same source, we make up for loss of heat. From this has arisen the division of food-substances into two classes, nitrogenous or nutritious, and non-nitrogenous or innutritious. To the former, which are alone capable of conversion into blood, Liebig has given the name, “plastic elements of nutrition”; and to the latter, which have reference to the production of heat, “elements of respiration.” These terms have since been popularised, and the two classes of foods are now known as “flesh-formers” and “heat-producers.” But how are these processes of flesh-forming and heat-producing carried on? They are carried on, in truth, by the aid of that vital force the nature of which, as we have already seen, is so puzzling to us, and so far beyond our comprehension. The blood has the power of converting into itself the nutritious portion of the food, which, in due time, it applies to the formation of cellular tissue, muscular fibre, membrane, and so forth; receiving in return the used-up particles of matter and other impurities which are constantly evolved in the progression, or advancement, of decay. Such of these impurities as are not otherwise thrown off, the blood carries with it to the lungs, where the change before spoken of is effected. The oxygen here received, as well as that absorbed by the skin, is conveyed to the capillaries, where combining, as it does, with the carbon and hydrogen of the food (a union of elements similar to that which occurs in the burning of a combustible substance out of the body), the heat necessary for the maintenance of life is produced. The building up of the tissues and the uniting of the three elements, occur, of course, at one and the same time. Though all this, in reality, is brought about by the vital force as the real source of power, yet the proposition, in the main, holds good.—That our existence is dependent upon chemical operations.*

But in what form does food, as such, present itself to us, since the elements themselves are not available for the purposes required by it? Food presents itself to us in the form of compound bodies in which, for the most part, the elements carbon, oxygen, hydrogen, and nitrogen, resolve themselves into proximate organic principles subservient to alimentation. These proximate organic principles may be either flesh-formers or heat-producers as the case may be. We know, of course, from analysis to which class they

belong. Thus for flesh-formers we have:—Fibrine, albumen, caseine, gelatine, and so forth; and for heat-producers, fat, starch, sugar, and gum. It has been calculated, as concerning these two classes of alimentary substances, that a healthy man in active employment loses from 9 to 12 oz. of carbon (the heat-producing element), and from 4 to 6 oz. of organised material daily. This loss, therefore, must be re-supplied, and the quantity of food required for the purpose will probably astonish those whose appetites are not of the keenest description. *Punch* tells us the secret of a young lady's delicate appetite, viz., tea and cake in the private room an hour before dinner in the dining room; and, if this be so, we need not fear for the part that we ourselves are required to perform. Dr. Edward Smith, whose investigations are invaluable, gives the following as the quantity needed daily by one who makes much bodily or mental exertion:—“Cooked meat, 8 oz.; bacon, 4 oz.; milk, 2 pints; bread 1 lb. to 1½ lb.; vegetables 1 lb.; butter, 2 oz.; sugar, 2 oz.; cheese, 2 oz. besides one or more eggs and the less important foods which enter into a daily dietary.” For a person whose occupation is sedentary less will be required in proportion. Should this rule not be observed, but should more be taken than the system can properly dispose of, or than its oxygen can burn away, a condition arises which adds both to size and weight. Liebig says (*Page 94 Organic Chemistry*), “At every period of animal life when there occurs a disproportion between the carbon of the food and the inspired oxygen, the latter being deficient, fat must be formed.” I think, however, it will be well to take this statement with some reserve. If we do not consume enough, i. e. if we do not meet the demands of the oxygen inspired, we shall certainly lose in weight, but if we consume too much, it will depend upon the state of the nervous system and digestive apparatus, as also upon idiosyncrasy of constitution, whether or not the surplus be stored up in the system in the form of flesh or fat. Those who possess the power, to a large degree, of appropriating the hydrocarbonaceous portion of the daily meal, will inevitably increase in weight if they do not inspire sufficient oxygen to burn the same away; whilst those who possess this power in a diminished degree, will remain more or less the same, as the case may be, notwithstanding a full or additional supply of carbonaceous material. Much, it must be admitted, may be done in most cases by the means at our disposal to lessen or increase the weight; but these means are limited, individual temperament and constitution being difficulties which we are frequently unable to cope with. What the proper weight should be it is not easy to say, but an approximation to the truth has been achieved by Dr. John Hutchinson who weighed and measured upwards of 2,600 men of various ages. The relation between the height and weight of these men was as follows:—“The increase of weight being “as nearly as possible five pounds for every inch in height beyond 61 inches.” At 61 inches the observed weight was 120 lb. Allowing, therefore, an additional five pounds for every inch above this height, a table is presented which forms a good and safe rule for our guidance. If the weight be greatly more or less than the averages thus indicated, it will generally signify that there is too much or too little carbon in the system. Both these conditions are attended by disadvantages which it will be desirable, if possible, to remedy, otherwise evil may arise, and, sooner or later, the health be injuriously affected. It was only a day or two since that a gentleman, whom I had not seen for several months, stopped me in a neighbouring suburb and shook hands. He was looking, I thought, remarkably well. Nevertheless I made the usual inquiries concerning his health, and his reply was:—“Thanks, I am as well as can be expected under the circumstances.” “Under what circumstances,” I inquired? “Well,” he rejoined “you see I have too much good health.” The thing is overdone, and I am very apt in consequence to get out of sorts.” I could quite understand that such was the case. This gentleman did not eat much, but he possessed the power, from whatever cause it might have arisen (probably from original temperament or constitution), of assimilating the starchy particles of the daily meal in greater proportion than was required to meet the demands of the oxygen inspired, and consequently these particles, having, under-

* The term “good health” was, as will be perceived, a misnomer.

gone conversion by the blood, were stored up in the cellular tissue there to impede the circulation, and so to produce the condition complained of. I could not recommend him to "do Banting," for Bantingism has proved a failure; but this gentleman, and all who are of similar constitution, should adopt a dietary consisting largely of those substances which we have pointed out as termed by Liebig "plastic elements of nutrition."

In the rule concerning weights just given, we have an excellent general indication of the line to be pursued with regard to the kind and quantity of food we are required daily to consume. Appetite and inclination, though not always infallible guides, must be left to determine the rest.

I will now refer for a moment to another and a rather singular feature in connection with this question of food. Besides the elements carbon, oxygen, hydrogen, and nitrogen, and their compounds, there are found in the animal body certain mineral constituents which, we may safely say, cannot be dispensed with. The use or uses of these are not well understood, but they undoubtedly play a very important part in the work which it is more especially the office of the circulation to perform. Iron, sulphur, phosphorus, calcium, and sodium, have all been found, and even copper and manganese have been significantly hinted at. These mineral constituents are, of course, derived from the food, though originally they come from the soil whence vegetable matter extracts the material for its growth.

Somewhat allied to this group is the important compound water. Water forms about three-fourths of the human body, and is absorbed by it unchanged. A large portion of the food we take is composed of water, and without it we could not live. It is difficult to ascertain the exact quantity required by an adult daily, but the minimum has been estimated at from four pounds to six pounds. The rapidity with which this fluid flows through the circulation is very great. In a high temperature it may be taken in repeated draughts until it passes off from the perspiratory tubes almost pure and tasteless.

There are also certain substances bearing the nature of foods which have been called medicinal and auxiliary. Amongst these are placed condiments and spices, theine, alcohol, and tobacco. The last two only will require special mention. Of alcohol (which has been classed with the elements of respiration), the eminent lecturer, Dr. Lankester, says:—"It may, perhaps, safely be advanced that with his present tendency to abuse this substance, man would be better without it. Nevertheless, if guided by reason, it may be made by man an alleviation of his sorrows, a protection to his health, and a harmless contribution to the pleasures of his social meals." And of tobacco (which cannot in any sense be regarded as a food) he states:—"Like other narcotics it obeys the law, that if a second dose be not taken till the effect of the first has gone off it can produce no permanent injury on the system." Much weight must attach to an opinion coming from so able an authority as Dr. Lankester.

So far, then, as we have gone (adhering strictly to the theory propounded by Liebig), what does our subject teach us? It teaches us that, physically speaking, to live as we ought to live, and to interpret correctly the laws of our being, we should keep up the balance between waste and supply, and maintain within the system that amount of resistance which will effectually oppose the constant encroachments of certain destructive agents external to it. So long as we do this, the processes we have described as appertaining to digestion, assimilation, and nutrition, will (*ceteris paribus*), fulfil in every respect their intended purpose. We cannot doubt that such purpose is admirably adapted to a condition of perfect happiness in relation to the circumstances by which we are surrounded. But however this may be, it is absolutely certain that perfection is not a state of being assigned to man. All would be well, no doubt, as regards life and health, but there is one untoward circumstance which altogether upsets our calculations, and comes into play to puzzle us, and, not unfrequently, to defy our best efforts. We have life and health, but we have also *disease*, and the presence of this evil is a matter of vast importance to us as subjects liable at any moment to its unkindly attacks. What, therefore, we may ask, is disease? Let us again turn to our theory, and consult the author himself. "Disease," says Liebig, "occurs

when the sum of vital force which tends to neutralise all causes of disturbance (in other words, when the resistance offered by the vital force), is weaker than the acting cause of disturbance."

Disease, therefore, is debility. It is a combat between oxygen and the vital force, in which the vital force gets weakened by the unflagging attacks of the oxygen. Restore the equilibrium which is necessary to health, increase sufficiently the resistance offered by the vital force, and disease will vanish. Liebig does not enlighten us as to the value of medicine, directly or indirectly, in accomplishing this purpose; but his theory points to food and hygienic means as the remedies most to be relied upon; hence the r-mark of Professor Graily Hewitt, "In the battle we wage with disease it is chiefly a question of supply." Medicine, however, must not be despised, for if it cannot impart vitality, it can oftentimes remove obstructions which stand in the way, and thus indirectly contribute to good. How it acts in the system in the majority of cases it is impossible to say; but that it possesses a power for good peculiar to itself, greater or less as the case may be, few, I think, will be prepared to deny. Dieting may be of service in indigestion, but if the stomach is too weak to extract from the food, however easy of assimilation, the force which is necessary to its own recovery, how and whence is such force to be obtained? Must we not, as the only alternative, strengthen and prepare the stomach for the work it has to perform? Yes. But how? The problem is one which the science of medicine is endeavouring to solve day by day, and I trust, even amid the conflict of opinion, that under its guidance we may be brought nearer and nearer to a full exemplification of the old proverb *experientia docet*. That food will ever take the place of medicine in the treatment of disease is far from likely; but nevertheless, it is certain that ther-in, and therein alone, is to be found that force which is the origin of motion and life, as well as the source of power and achievement, in all organised beings. The law is supreme and thus it must remain.

This (though an outline only), completes my subject, so far as it is presented by the Liebigian theory of Life, Health, and Disease. It remains for me to allude briefly to the aspect of food socially, physically, and morally, and with this I will conclude my paper. A great deal might be said respecting the adulteration of food, its various kinds and modes of preparation, and the sources from whence it is derived, etc.; but as these do not strictly come within the province of my title, I have omitted them in deference to the considerations herein laid before you.

In addition to effecting the maintenance of life in the system, food possesses a quality which appeals agreeably to the sense of taste. This is intentional, in order that we may seek of our own accords to fulfil the law which appertains to our existence. The real sense of taste resides in the brain, and, as the brain differs in different individuals, so accordingly does the sense of taste. That portion of the brain which is here involved is termed by phrenologists "alimentiveness," and those who possess this organ very large (granting for a moment that phrenology is true), will be apt to consider that the *ne plus ultra* of human existence consists in eating and drinking. Their conversation will be largely directed to good dinners, luxurious suppers, hot luncheons, and all those things relating to the palate which the sense of taste recalls so agreeably to their minds. On the other hand those who have this organ correspondingly small, will be deficient in the sense of taste, and will trouble themselves but little about the food that is set before them. They will rather eat to live than live to eat. Whilst we should be especially careful to avoid the evils consequent upon too keen an appreciation of the "good things of this life," as they are called, we should bear in mind that these good things are much too important, as aids to our welfare from day to day, to admit of indifference or neglect. To let ourselves down by an inadequate supply of good food, is inevitably to create mischief, and to upset the balance of forces constantly at work in the system.

And here we are reminded of cookery. The art of cookery has for its objects, the gratification of the sense of which we have been speaking, and the placing before us the various kinds of food in a digestible and nutritious form. As these objects are perfectly legitimate and lawful, cookery (and I use the term in its widest signification), has been made a

study by all civilised nations. The time and attention devoted to its various details are so great, and the consequent pleasure it affords so persistently overpowering, that our entire social life may be said to be completely under its influence. Food, and therefore food prepared in the most palatable form, is imperative. Liquid or solid, it is part and parcel of ourselves, and of our external life. On most, if not on all, occasions of social greeting, it is the one thing first to be thought of. It would be difficult to understand this custom of appealing to the stomach, were it not that it is supposed to convey a *sentiment* which may be described in the language of Byron as the "flow of soul." What pleasing anticipations does not the ordinary dinner-party give rise to in the minds of those who are fond of good cheer! And with what care and anxiety will not the expectant host descend into detail, and arrange that his cook shall be duly instructed in the work of preparation. The giver of a good dinner is generally regarded, for the time being, as a very estimable character.

"Hail to thee worthy Timon;—and to all
That of thy bounty taste!—the five best come first
Acknowledge thee their patron; and best freely
To gratulate thy piteous bosom!"
The ear, taste, touch, smell, pleased from thy table rise."

The amenities of life, the courtesies, the etiquette, the conversation, the dress, etc., are all duly acknowledged and considered in connection with the daily meal that fashion, or custom, or necessity, has instituted for our welfare. Banqueting, feasting, merrymaking, mirth, laughter, and good temper, are well nigh synonymous terms. Nothing, in fact, can be done without the stomach; and it is said that the jovial fellow John Bull, that through his stomach you can easily reach his head and his pocket too. To institute, if it were possible, a state of civilisation without the influence which food exerts, would be to rob the human race of a pleasure which no other source could possibly supply. Moreover, it cannot be doubted that such pleasure has a balance on the side of good, and contributes to the happiness and welfare of nations and peoples on every side.

So much, indeed, for the use of this privilege; the abuse of it, however, is truly lamentable. The condition of degradation to which the human mind will stoop to gratify a morbidly acquired taste is altogether astounding. Diseased liver, rotten flesh, and intestines of birds reeking with dregs, are, when cooked, delicious morsels in the mouths of epicurean feasters. The Romans were more refined in their cookery than we are; but the luxuries of a Lord Mayor's dinner at the Mansion House are nothing to be compared to the abominable messes which were served up at the feasts of these gourmands. Here is a receipt for a delicate sausage:—"Sow's liver, chopped up with fat and various herbs, accompanied with a sauce of milk, or dormice smeared with honey, and sprinkled with poppy juice." To And here also is a receipt for a celebrated sauce called *Garrum*:—"The putrid intestines of mackerel, etc. mixed with vinegar, hot wine, salt, and spices." No doubt this was a great discovery, but, in point of fact, the Romans stalked through the world in search of substances or mixtures, no matter how revolting, calculated to gratify their love of eating. At their feasts (the expense of which sometimes amounted to the enormous sum of £40,000), they used to remain at table till they could not eat another morsel: they would then retire into the ante-chambers belonging to the dining apartments, where basins were ready prepared, and take an emetic; and after the stomach was emptied by its operation, they resumed their seats at the dinner table to continue their repasts.* Could anything be more morally degrading than this? We do not commit such things in these days; but we do, nevertheless, pay great attention to gastronomic science; and to this end cooks are paid enormous salaries, and are handsomely rewarded for their services. I mean, tell, in hiding adieu to his readers, says to them:—

"I wish you all good fortune, and that you may possess the means of enjoying the delectable wines we have passed in review, and a dinner dressed by an Alberlin, a Brunet Montrose, a Jules Magdelin, a Georges Comte, a Sedille, or a Valentin, and then you will be of the most fortunate in this world." Another professor observes:—"The discovery of a new dish confers more happiness upon humanity than the discovery of a new star." So that the gratification of the

taste by the aid of the culinary art is as fully appreciated by ourselves as it was by the Romans. Although this art does not take rank as a strictly intellectual pursuit (rather, indeed, the reverse), it may, for aught I will pronounce to the contrary, be well worthy the time and study so persistently devoted to it. Food, like other things, may be sadly abused, but its importance to us as an absolute necessity still remains; whilst the enjoyment it affords as a good gift to mankind is at all times present with us.*

But if food is important to us socially, still more so is it physically. As we have already shown this in stating our theory it will not be necessary to dwell upon it long. Without food of some kind it is impossible for us to live. If we withhold the necessary supply, starvation at once sets in. The oxygen, being unresisted, feeds upon the tissues, and, ere long, dissolution occurs. Those great blessings health and strength are mainly dependent upon the food we take, and quantity and quality must both be duly observed. However much we may wish it otherwise, or desire to rise superior thereto—however correct or convenient it may be, in the home circle, to possess a delicate appetite—we must accept this law as an absolute condition of our existence, and as the only means by which physical and intellectual work can be successfully accomplished. The one danger to be avoided is *excess*, though too often, alas! for the poor of this country, the mischief, from necessity, lies in the opposite direction. Excess and deficiency are both evils, for both engender discomfort and disease. To determine in what consists the one or the other is not always easy; but, as before intimated, much may be done by the practical application of the Liebigian theory in its relation to height and weight. We do not care to be troubled in this way, otherwise it would be quite possible to press into our service the plain teachings of science in regard to this important question of waste and supply. Fortunately for us there is a wide range between the points of mere sufficiency to keep life and strength in the body on the one hand, and of the quantity which may be taken daily without permanent mischief on the other. Were it not for this wise provision of nature, we should be still greater sufferers than we are from disturbances caused by inattention to the strict laws of nutrition.

A brief word or two on the moral aspect of food must now close my remarks. It is impossible not to observe from the actions and opinions of men, that there exists in the living subject a very intimate connection between mind and matter; so intimate, indeed, that it is difficult to say where the influence of the one ends and the other begins. The mind may possess a separate and independent existence of its own, but it is nevertheless true, that it must have a physical basis for its development and manifestation. I think it will be generally admitted, without reference to any particular dogma, that the brain is the organ of the mind, and of the mind's special attributes and affections. All the passions such as grief, fear, anger, and so forth; and all the sentiments such as hope, ideal love, and veneration, reside solely in the brain. If not the offspring of the brain, they are directed by its power, and governed and controlled by its physical condition. Even volition itself is subject to the same law. It may not appear anatomically, but the inference is so apparent that it scarcely admits of denial. A healthy brain, therefore, means, presumably, a healthy mind, and a healthy mind, duly instructed, notwithstanding difference of mental constitution, can so far reason with itself as to regulate the moral life and conduct. That it does not always do so may be attributable to the difference here referred to. We often do that which we know to be wrong, because the power to will in the opposite direction is not exercised by the act of volition. Volition, as we have said, may be subject to the law of matter, but this does not alter one iota the question of right and wrong. To hold a

* Cooks and Gastronomists who write on the subject of Cookery, endeavour to invest the ordinary acts of eating and drinking with an idealism and a poetry which such acts cannot be said to possess. A plausible defence of their position, on the part of these authors, is, the fact that can be attempted. Mrs. Beeton, who laboured incessantly for four years to produce a book on *Household Management*, in commenting on dining, writes as follows:—"The nation which knows how to dine, learns the lesson of progress. It knows both the will and the skill to reduce to order, and surround with idealisms and graces, the more material conditions of human existence, and wherever that will and that skill exist life cannot be wholly ignominious."

contrary opinion would be to place ourselves in close proximity to the dangerous doctrine of fatalism.

The question therefore arises:—Is not the brain (which, by means of the nervous system, directs and controls the will), and, by inference, the nervous system also, more or less influenced by the stomach, and rendered healthy by the food we take? That such is the case will, I think, be sufficiently clear from what we have already advanced.* But to whatever extent this may hold good as a rule, certain it is that, in spite of food, disease and indigestion of body and mind will attack us, and upset the whole harmony of our being. From these we may recover, for the vital force is strong within us, but there must come a time in our history when the law of nature will assert its supremacy, and when the matter elements to make way for renewed life and activity upon the globe. Beyond and behind this great change it is impossible for us to penetrate; but if immortality be, indeed, the lot of man—if body and spirit be something more than names for imaginary substrata of groups of natural phenomena—if, indeed, there is a reality in life extending beyond the present: then, resting from our labours, we may, hereafter, rejoice in the infinite wisdom of creative power, and look unmoved and without a tear, upon "the wreck of matter and the crash of worlds!"

THE PETROLEUM ACT, 1869.

A BILL FOR THE SAFE KEEPING OF PETROLEUM AND OTHER SUBSTANCES OF A LIKE NATURE.†

WHEREAS it is expedient to consolidate and amend the law relating to the safe keeping of petroleum and other substances of a like nature: Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

Short title of Act. 1. This Act may be cited as "The Petroleum Act, 1869."

Interpretation of certain terms in the Act. 2. In this Act, if not inconsistent with the context, the following terms have the meanings therein assigned to them; (that is to say,)

"Petroleum,"

The term "petroleum" includes rock oil, Rangoon oil, Burmah oil, any oil made from petroleum, coal, schist, shale, peat, or other bituminous substance, provided that such oils, when tested in manner set forth in the schedule to this Act, give off an inflammable vapour at a temperature of less than one hundred degrees of Fahrenheit's thermometer; it also includes any product of any of the above-mentioned oils, which however tested gives off an inflammable vapour at a temperature of less than one hundred degrees of Fahrenheit's thermometer.

"Borough."

The term "borough" means—

In England, any place for the time being subject to the provisions of the Act of the session of the fifth and sixth years of King William the Fourth, chapter seventy-six, "to provide for the regulation of municipal corporations in England and Wales;"

In Scotland, any royal burgh and any of the burghs or towns returning or contributing to return members to Parliament;

In Ireland, any place for the time being subject to the provisions of the Act of the session of the third and fourth years of Her

Majesty, chapter one hundred and eight, "for the regulation of municipal corporations in Ireland."

The term "harbour" includes any port, dock, "Harbour." navigable river, pier, or other works in or at which vessels ship or discharge goods or passengers;

The term "harbour authority" includes all persons or bodies of persons, corporate or unincorporate, being proprietors of or intrusted with the duty of improving, maintaining, or managing any harbour.

3. Every vessel carrying a cargo consisting wholly or in part of petroleum, on entering any harbour within the United Kingdom, shall conform to such regulations in respect to the place at which she is to be moored as may from time to time be issued by the harbour authority having jurisdiction over such harbour. If any vessel is moored in any place in contravention of such regulations, the owner or master of such vessel shall incur a penalty not exceeding twenty pounds for each day during which the vessel remains so moored, and it shall be lawful for the harbour master, or any other person acting under the orders of the harbour authority, to cause such vessel to be removed, at the expense of the owner thereof, to such place as may be in conformity with the said regulations, and all expenses incurred in such removal may be recovered in the same manner in which penalties are by this Act made recoverable.

4. Save as hereinafter mentioned after the passing of this Act, petroleum shall not be kept within fifty yards of a dwelling house or of a building in which goods are stored, except in pursuance of a licence given by such local authority as is in this Act mentioned.

Any petroleum kept in contravention of this section shall be forfeited, and in addition thereto the occupier of the place in which such petroleum is kept shall be liable to a penalty not exceeding twenty pounds a day for each day during which petroleum is kept in contravention of this Act.

This section shall not apply to petroleum kept for private use, nor shall it apply to petroleum kept by a dealer for sale by retail, provided the following conditions are complied with:

- (1) That it is kept in separate glass or earthenware bottles, each of which contains not more than half a pint, and is securely corked;
- (2) That the aggregate amount kept by the dealer, supposing the whole contents of the bottles to be in bulk, does not exceed three gallons.

5. The following bodies shall respectively be the local authority to grant licences under this Act in the districts hereinafter mentioned; (that is to say,)

- (1) In the city of London, except as hereafter in this section mentioned, the court of the lord mayor and aldermen of the said city;
- (2) In the metropolis, (that is in places for the time being within the jurisdiction of the Metropolitan Board of Works under The Metropolitan Management Act, 1855,) except the city of London, and except as hereafter in this section mentioned, the Metropolitan Board of Works:

* Apart from the civil law, which must be held supreme, should we not rather pity than condemn the offending poor who have neither food nor instruction to exercise a presiding influence over their lives and characters?

† Prepared and brought in by Mr. Knatchbull-Hugessen and Mr. Secretary Bruce. Ordered by the House of Commons to be printed, 13th May. Read a second time, 16th June, 1869.

- (3.) In any borough in England or Ireland, except as hereafter in this section mentioned, the mayor, aldermen, and burgesses, by the council :
- (4.) In any place in England or Ireland, except as hereafter in this section mentioned, within the jurisdiction of any trustees or improvement commissioners appointed under the provisions of any local or general Act of Parliament, and not being a borough, the trustees or commissioners :
- (5.) In any burgh or place in Scotland, except as hereafter in this section mentioned, with the jurisdiction of any town council, and not subject to the jurisdiction of police commissioners or trustees, the town council :
- (6.) In any burgh or place in Scotland, except as hereafter in this section mentioned, within the jurisdiction of police commissioners or trustees exercising the functions of police commissioners under any general or local Act, the police commissioners or trustees :
- (7.) In any harbour within the jurisdiction of a harbour authority, whether situate or not within the jurisdiction of any local authority before in this section mentioned, the harbour authority, to the exclusion of any other local authority :
- (8.) In any place in England or Ireland in which there is no local authority as before in this section defined, the justices in petty sessions assembled, and in Scotland any two justices of the peace for the county.

Sale of
petroleum
for use.

6. No person shall sell or expose for sale for use within the United Kingdom any description of petroleum which gives off an inflammable vapour at a temperature of less than one hundred degrees of Fahrenheit's thermometer, unless the bottle or vessel containing such petroleum have attached thereto a label in legible characters stating as follows : "Great care must be taken in bringing any light near to the contents of this vessel, as they give off an inflammable vapour at a temperature of less than one hundred degrees of Fahrenheit's thermometer." Any petroleum sold or exposed for sale in contravention of this section shall be forfeited, and in addition thereto the person selling or exposing the same for sale in contravention of this section shall for each offence be liable to a penalty not exceeding five pounds.

Mode of
granting
licences.

7. Licences in pursuance of this Act shall be valid if signed by two or more of the persons constituting the local authority, or executed in any other way in which other licences, if any, granted by such authority are executed. Licences may be granted for a limited time and may be subject to renewal or not in such manner as the local authority thinks necessary.

There may be annexed to any such licence such conditions as to the mode of storage, the nature of the goods with which petroleum is to be stored the testing of such petroleum from time to time, and generally as to the safe keeping of petroleum as may seem expedient to the local authority.

Any licensee violating any of the conditions of his licence shall be deemed to be an unlicensed person. There may be charged in respect of each licence granted in pursuance of this Act such sum,

not exceeding two shillings and sixpence, as the local authority may think fit to charge.

8. If on any application for a licence under this Act the local authority refuses the licence, or grants the same only on conditions with which the applicant is dissatisfied, the local authority shall, if required by the applicant, deliver to him in writing under the hand or hands of one or more of the persons constituting the local authority, a certificate of the grounds on which they refused the licence or annexed conditions to the grant thereof.

The applicant within ten days from the time of the delivery of the certificate may transmit the same to one of Her Majesty's Principal Secretaries of State if the application is for a licence in England or Scotland, and to the Lord Lieutenant or other chief governor if the application is for a licence in Ireland, together with a memorial, praying that notwithstanding such refusal the licence may be granted, or that the conditions may not be imposed, or may be altered or modified in such manner and to such extent as may be set forth in such memorial.

It shall be lawful for the Secretary of State, Lord Lieutenant, or other chief governor, if he think fit, on consideration of such memorial and certificate, and if he think it necessary or desirable, after due inquiry from and a report by such person as he may appoint for that purpose, to grant the licence prayed for, either absolutely or with such conditions as he thinks fit, or to alter or modify the conditions imposed by the local authority; and the licence so granted or altered and modified as the case may be, when certified under the hand of the said Secretary of State, Lord Lieutenant, or other chief governor, shall be to all intents as valid as if granted by the local authority.

9. Any officer authorized by the local authority may purchase petroleum from any dealer in petroleum, or may, on producing his authority, require the dealer to show him all or any of the vessels in which petroleum in his possession is stored, and the place of the storage thereof, and to give him samples of such petroleum on payment of the value of such samples.

When the officer has by either of the means aforesaid taken samples of petroleum, he may declare in writing to the dealer that he is about to test the same in manner provided by this Act, and it shall be lawful for him to test the same at any convenient place at such reasonable time as he may appoint, and the dealer or any person appointed by him may be present at the testing, and if it appear to the officer so testing that the petroleum from which such samples have been taken has been kept, offered, or exposed for sale contrary to this Act, he may certify such fact to the local authority, and the certificate so given shall be receivable as evidence in any proceedings that may be taken against a dealer in petroleum in pursuance of this Act; but it shall be lawful for a dealer proceeded against to give evidence in proof that such certificate is incorrect, and thereupon the court before which any such proceedings may be taken may appoint some person skilled in chemistry to examine the samples to which such certificate relates, and to declare whether such certificate is correct or incorrect.

In case of
refusal of
licence the
applicant
may memo-
rialize Se-
cretary of
State.

Testing of
petroleum
by officer
of local
authority.

Any expenses incurred in testing any petroleum of any dealer in pursuance of this section shall, if such dealer be convicted of keeping, selling, or exposing for sale petroleum in contravention of this Act, be deemed to be a portion of the costs of the proceedings against him, and shall be paid by him accordingly. In any other event such expenses shall be paid by the local authority out of any funds for the time being in their hands.

Search for petroleum.

10. Petroleum may be searched for in the same manner, under the same warrants, and subject to the same conditions in, under, and subject to which gunpowder may be searched for in pursuance of the Act of the session of the twenty-third and twenty-fourth years of the reign of Her present Majesty, chapter one hundred and thirty-nine; and all the provisions of the said Act relating to searching for gunpowder are hereby incorporated with this Act, and shall for the purposes of this Act be construed as if the word "gunpowder" in such provisions included petroleum as defined by this Act, and as if the Act therein referred to were this Act.

Summary proceedings may be recovered and enforced as follows: for offences, penalties, &c.

11. Any forfeiture or penalty under this Act may be recovered and enforced as follows:

In England, before two justices of the peace in manner directed by the Act of the session of the eleventh and twelfth years of the reign of Her present Majesty, chapter forty-three, intituled "An Act to facilitate the performance of the duties of justices of the peace out of sessions within England and Wales with respect to summary convictions and orders," and any Act amending the same.

In Scotland, in manner directed by The Summary Procedure Act, 1864, and any Act amending the same.

In Ireland, in manner directed by The Petty Sessions (Ireland) Act, 1851, and any Act amending the same; and in Dublin by the Acts regulating the powers of justices of the peace, or of the police of Dublin metropolis.

Any jurisdiction by this section authorized to be exercised by two justices may be done or exercised by any of the following magistrates within their respective jurisdictions, that is to say:

As to England, by any metropolitan police magistrate sitting alone at a police court or other appointed place, or by the lord mayor, or any alderman of the city of London, sitting alone or with others within the said city.

As to Scotland, by the sheriff or sheriff substitute, or by any police magistrate of a burgh.

As to Ireland, by any one or more divisional magistrates of police in the police district of Dublin, and elsewhere by one or more justice or justices of the peace in petty sessions.

The term "court" shall include the justices, magistrate, or other person or persons before whom proceedings may be had for the recovery of any forfeiture or penalty.

Reservation of previous powers with respect to inflammable substances.

12. All powers given by this Act shall be deemed to be in addition to and not in derogation of any other powers conferred on any local authority by Act of Parliament, law, or custom, and the local authority may exercise such other powers in the same manner as if this Act had not passed; and nothing in this Act contained shall be deemed to exempt any person from any penalty

to which he would otherwise be subject in respect of a nuisance.

13. There shall be repealed—

(1.) The Act of the session of the twenty-fifth and twenty-sixth years of the reign of Her present Majesty, chapter sixty-six, intituled "An Act for the safe keeping of petroleum," and

Repeal of Acts 25 & 26 Vict. c. 66
31 & 32 Vict. c. 56.

(2.) The Act of the session of the thirty-first and thirty-second years of the reign of Her present Majesty, chapter fifty-six, and intituled "An Act to amend the Act twenty-fifth and twenty-sixth Victoria, chapter sixty-six, for the safe keeping of petroleum."

Provided that such repeal shall not affect any licence granted under any Act hereby repealed or any liability or penalty incurred in respect of any offence committed before the passing of this Act, or any legal remedy for enforcing such liability or penalty.

SCHEDULE.

Directions for applying the Flashing Test to Samples of Petroleum Oil.

The vessel which is to hold the oil shall be of thin sheet iron; it shall be two inches deep and two inches wide at the opening, tapering slightly towards the bottom; it shall have a flat rim, with a raised edge one quarter of an inch high round the top; it shall be supported by this rim in a tin vessel four inches and a half deep and four and a half inches in diameter; it shall also have a thin wire stretched across the opening, which wire shall be so fixed to the edge of the vessel that it shall be a quarter of an inch above the surface of the flat rim. The thermometer to be used shall have a round bulb about half an inch in diameter, and is to be graduated upon the scale of Fahrenheit, every ten degrees occupying not less than half an inch upon the scale.

The inner vessel shall be filled with the petroleum to be tested, but care must be taken that the liquid does not cover the flat rim. The outer vessel shall be filled with cold, or nearly cold, water; a small flame shall be applied to the bottom of the outer vessel, and the thermometer shall be inserted into the oil so that the bulb shall be immersed about one and a half inches beneath the surface. A screen of pasteboard or wood shall be placed round the apparatus, and shall be of such dimensions as to surround it about two-thirds, and to reach several inches above the level of the vessels.

When heat has been applied to the water until the thermometer has risen to about 90° Fahrenheit, a very small flame shall be quickly passed across the surface of the oil on a level with the wire. If no pale blue flicker or flash is produced, the application of the flame is to be repeated for every rise of two or three degrees in the thermometer. When the flashing point has been noted, the test shall be repeated with a fresh sample of the oil, using cold, or nearly cold, water as before; withdrawing the source of heat from the outer vessel when the temperature approaches that noted in the first experiment, and applying the flame test at every rise of two degrees in the thermometer.

On the 21st ult. the employees of Messrs. Mander Brothers, Wolverhampton, took their annual excursion. The party proceeded to Newport (Salop), where they sat down to an excellent dinner. In the afternoon they visited the beautiful grounds at Lilleshall, by permission of his Grace the Duke of Sutherland.

DR. DISPE

Dr. Kierulff's better known country, has been to whom the of their "first" in districts our own for When Messrs the construction balls they with such in order the ordinat circumstance made so particularly has since the of fitting up alluded. The adapted for they would Tourists' O we have venient far ful to that have been monoco fitted with liquids—(—) camphor, contains a ing medical Dover's pain confection colic, &c. we find the bottle has been beautifully for an advantage be and given medicines and, the danger is fullest ex These Treated by quackery how large temptatio and gent with their likely it homoeopat elegant a serviceabl shillings, prepared bottle m



DR. KIRBY'S PORTABLE MINIATURE DISPENSARIES AND TOURISTS' CASES.

DR. Kirby's Miniature Dispensaries are at present far better known in India and the Colonies than in this country, having hitherto been almost exclusively prepared for, and introduced to, travelling surgeons and others to whom their singular compactness and the completeness of their "fixings," must have proved exceedingly valuable in districts not so plentifully supplied with drug stores as our own fortunate island. Their origin is thus explained: When Messrs. Brassey, Henpage and Wythers undertook the construction of the great railway from Delhi to Umballa, they applied to Dr. Kirby to provide their employés with such supplies of medicines as he should deem requisite, in order that the men might be somewhat prepared to meet the ordinary emergencies of disease to which, under the circumstances, they would be liable. This provision was made so successfully, that a considerable demand arose, particularly in India, for similar supplies, and Dr. Kirby has since then established a large business for the purpose of fitting up the Miniature Dispensaries to which we have alluded. These are, we need scarcely remark, equally well adapted for other colonies, and in Australia we imagine they would prove of great service and of ready sale. The Tourists' Cases which have just been introduced, will, we have little doubt, become popular as most convenient family medicine chests, and prove peculiarly useful to that class for whom, as their title indicates, they have been in the first place designed. They are neat morocco cases, occupying but little space. Each case is fitted with six stoppered bottles, containing the following liquids:—Sal volatile, tincture arnica, chlorodyne, essence camphor, solutions of acetate of lead and chloride of zinc. It contains also eight rosewood-corked bottles, with the following medicines in the form of pills:—Compound rhubarb, Dover's powder, quinine, pepsine ginger and rhubarb, confection of opium, ipecacuanha and opium, bluepill and colocynth, and nitre and camphor. In a separate division, we find lint, plaster, and a lunar caustic point. Each bottle has an elegant little gold label. The pills are beautifully finished and coated, so that they may be preserved for an indefinite length of time, a further important advantage being that they are thus rendered quite tasteless, and given an almost inviting appearance. By offering the medicines in this form, definite doses are always ready, and, the injudicious use of scales being thus avoided, danger is entirely averted and convenience studied to the fullest extent. We have been thus minute in describing these Tourists' Cases because we believe they will be appreciated by the trade as well as by the public. There is no quackery about the system, and our readers, who well know how largely the success of homeopathy has been due to the temptations offered by pretty cases of medicine to ladies and gentlemen who wished to meddle in a harmless way with their own fanciful complaints, will readily conceive how likely it is that customers who have not embraced the homeopathic doctrines, will as readily accept an equally elegant medicine case and one, according to their views, more serviceable. The Tourist Case complete sells for thirty shillings, and a handsome profit is left to the chemist. The prepared medicines will also be supplied, so that any exhausted bottle may be replenished. Larger chests, with much more

varied contents, are also fitted up in the same manner to sell at five guineas. These are adapted for families going abroad, and for other obvious circumstances. Dr. Kirby's laboratory is at 14, Newman-street, Oxford-street, and we believe the cases are now ready to be supplied to the trade.

BOLTON'S INOXIDISABLE LARD.

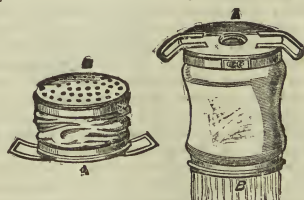
WE have before us samples of lard and beef suet, from Messrs. Bolton and Co., of 146, Holborn Bars, said to have been purified by a chemical process, and rendered perfectly impervious to the action of oxygen, being thus secured under any circumstances, from the liability to become rancid. Our samples have been prepared about four months, and we have never met with sweeter qualities. The process has been thoroughly tested for a much longer period than this, and is unquestionably efficacious. The advantages of an inoxidisable fat in pharmacy and perfumery, will be at once apparent, in the latter branch of manufacture especially, the slight extra expense being more than saved by the economy in perfume requisite.

AMERICAN BAY RUM.

SOME inquiries have been addressed to us as to the above, and its uses, and as we have received samples of the preparation from two houses, we are happy to be able to supply the information. It is a spirit distilled from the leaves of a *Laurus*, chiefly obtained from the West Indian Islands, and is largely used in the United States, not as a beverage, but as a wash for the hair, and a refreshing lotion *à la* toilet vinegar. In some parts of Germany, too, it has become popular, with what reason we know not, as an external application for rheumatism. The English consignees, as far as we know, are Messrs. Foster, of Bishopsgate-street, and Fowler and Sheppard, of Hollywood-road, West Brompton.

THE AUTOMATON SPONGE.

THE invention which has been registered under the above title, by Messrs. Frederic Walton and Co., Old Hall Works, Wolverhampton, will, we think, be more readily understood by our readers if we describe it as a portable shower-bath. Taking this view of it, its advantages will be very evident



COMPRESSED FOR FILLING WITH WATER IN THE BATH. FILLED WITH WATER FOR USE.

from the short description which we now append, and to physicians and patients, for sanitary purposes, as well as in a more commercial sense to shippers and general dealers both at home and abroad, its introduction will, doubtless, be of considerable service. The ordinary hand shower-bath, which this invention is, we think, destined to supersede, could only be filled by immersing it in water at least of its own depth. The Automaton Sponge, however, will fill itself with water if placed in a bath which is only covered to the depth of one or two inches, and when not in use its construction will allow it to be strapped down to a ver-

small space. The cylinder is made of the best vulcanised india rubber, and within is a spiral spring. It is placed in the water inverted (as shown in the first sketch), and it immediately fills itself by means of a valve. When full it holds about three quarts of water, and it is evident from the drawing how readily this may be applied in the form of a shower-bath to any part of the person. The action of the valves is twofold, in one case admitting the water and in the other regulating its flow by the admission of air. The apparatus must certainly be regarded as a great boon to travellers, and will be appreciated in hotels, hospitals, and bath-rooms everywhere.

SNELLING'S PHOTOGRAPHIC ALBUM.

MESSES. SNELLING BROTHERS have introduced the album of the season, which will be sure to win the admiration, especially of ladies of artistic taste. It is of the largest (quarto) size, and each page is printed with a border in pencil ink, after various tasteful designs, the intention being for these to be coloured by hand. They will thus afford much interesting occupation, and when finished, will make a most handsome volume.



BOOKS FOR CHEMICAL STUDENTS.

A FEW years ago, the chemistry of the text-books in common use was not the chemistry accepted by the leading professors of the science. The doctrines of Laurent, Gerhardt, Williamson, and other daring innovators could no longer be rejected, but the writers of books for students were unwilling to disturb the ordinary course of instruction. Even Dr. Odling, one of the earliest disciples of Gerhardt, was constrained to adopt the old atomic weights in an elementary work which he produced in 1865, though he had long before declared his conviction that these weights were untenable. Happily, the esoteric chemistry of the transitional period is now the basis of instruction, and the text-books which have recently appeared faithfully reflect the views of the writers.

A history of chemical theory was needed to justify the general acceptance of novel doctrines, when M. Wurtz produced such a work as an introduction to his "*Dictionnaire de Chimie*." This important addition to the literature of chemistry has been admirably translated by Mr. Watts for the enterprising publishers, Messrs. Macmillan and Co., and English students may now read with ease and pleasure a masterly disquisition on the development of modern chemical philosophy.* M. Wurtz's opening sentences are inconsistent with the tenor of his discourse. He asserts that chemistry is a French science, and that it was founded by Lavoisier of immortal memory, but he reminds us that his hero came after Becher, Stahl, Boyle, Mayow, and other chemical philosophers who were not Frenchmen, and devotes separate chapters to Dalton and Berzelius. To quote the Translator's preface, "though the opening sentences may be thought to savour too strongly of national partiality, it will, nevertheless, be found that the author has habitually done full justice to the labours of chemists belonging to other nations." We will not attempt to give an outline of

M. Wurtz's long exposition, but will simply remark that the doctrines of chemistry are traced from their origin through their successive evolutions, in a manner that makes us forget the difficulties encountered in other works on chemical philosophy. The author's meaning is always obvious, and though he leads us through the mazes of speculation, we never think of resting until he takes leave of us, repeating the maxim of Bacon, "Truth is the daughter of time and not of authority." Mr. Watts has supplied a few notes, elucidating discoveries which have important bearings on chemical theory, but have been passed over by M. Wurtz.

The tenth edition of "Fownes's Manual"† is undoubtedly the best work of reference that has been compiled for the use of students of chemistry. It consists of more than a thousand pages, and affords ample information upon almost every subject that has been investigated by chemists. Its editors Dr. H. Bence Jones and Mr. Henry Watts have preserved the arrangement adopted by Professor Fownes, but they have been compelled to make considerable additions to most of the sections, and to re-write several parts of the work. To the industry of Mr. Watts, the learned editor of the "Dictionary of Chemistry," we trace the great extension of the part devoted to Organic Chemistry, the important additions made to the descriptions of the metals, and the admirable new chapter on the General Principles of Chemical Philosophy. The important part treating of Animal Chemistry is evidently the work of Dr. Bence Jones. We have used this comprehensive manual almost daily since the date of its publication, and have seldom failed to obtain from it the exact information we required. We cannot agree with those critics who think that the work has grown too big, as there are several smaller books adapted for beginners, and "Fownes's Manual" is required for the advanced student. When the next edition is prepared, the further increase of the volume may, perhaps, be avoided by leaving out those portions that relate to pure physics.

In Professor Roscoe's "Lessons in Elementary Chemistry,"‡ the most important facts and principles of the science are described in plain but precise language, and arranged in a form admirably suited to the present require-



POTATO STARCH (ROSCE).

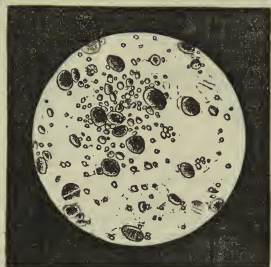
ments of elementary instruction. The new edition now before us, is a beautifully printed volume of 458 pages, embellished with a chromolithograph representation of the

* *A History of Chemical Theory, from the Age of Lavoisier to the Present Time*. By AD. WURTZ, Membre de l'Institut (Académie des Sciences). Translated and edited by HENRY WATTS, B.A., F.R.S. London: Macmillan and Co. 6s.

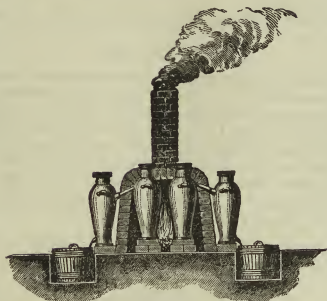
† *A Manual of Elementary Chemistry, Theoretical and Practical*. By GEORGE FOWNES, F.R.S., late Professor of Practical Chemistry in University College, London. Tenth edition, revised and corrected. London: John Churchill and Sons.

‡ *Lessons in Elementary Chemistry: Inorganic and Organic*. By HENRY E. ROSCOE, B.A., F.R.S., Professor of Chemistry in Owens College, Manchester. New editions. London: Macmillan and Co. 4s. 6d.

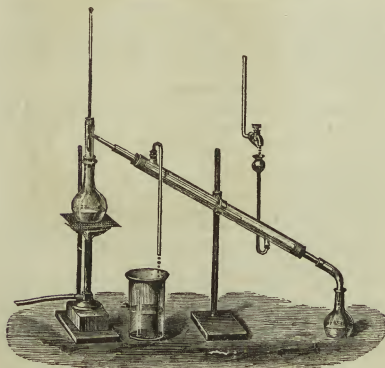
spectra of the metals, and 67 excellent woodcuts, of which we give a few specimens. The work embraces inorganic and organic chemistry, and though the descriptions of processes and products are necessarily brief, they are remarkably lucid. The arrangements of the subjects discussed is



WHEATEN GRAIN (ROSCOE).

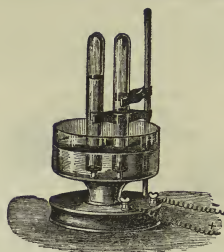


DISTILLATION OF SULPHUR (ROSCOE).



APPARATUS FOR FRACTIONAL DISTILLATION (ROSCOE).

admirable, and in giving Exercises and Questions upon the Lessons, Professor Roscoe has indicated the proper course of teaching science in schools.

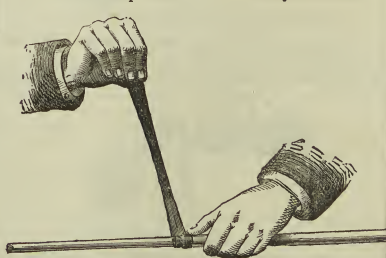


ELECTROLYTIC DECOMPOSITION OF WATER (ROSCOE).

The method adopted in Mr. Barff's "Introduction to Scientific Chemistry"* is somewhat different from that of other elementary treatises. In Part I. no symbols or atomic weights are used. Definite quantities in grammes are invariably employed, the author having always found that beginners have great difficulty in conceiving abstract numbers, and that symbols and equations are regarded by many as almost insuperable impediments. Only a few theoretical considerations are introduced in the work, and these are reserved for Part II. Simple examples of calculation and questions on the subjects of each chapter are given, and at the end of the book there are additional questions from the London University Examination Papers. Only those elements which are usually distinguished as "non-metallic" are systematically considered in the work, but the more common metals which enter into combination with them are indirectly noticed. This is a thoroughly practical book by an experienced teacher, and we are quite sure that it is well adapted for the use of schools and for private study. It is essentially a book for workers, and we can recommend it to the students who attempt to solve our monthly problems.

Professor Bloxam's new work† is intended for use in the chemical laboratory by those who are commencing the study of practical chemistry. It contains:—

1. A series of simple tables for the analysis of unknown



MAKING AN INDIA-RUBBER JOINT (BLOXAM).

substances of all kinds (not excepting organic bodies) which are known to be single bodies, and not mixtures.

* *An Introduction to Scientific Chemistry: designed for the use of Schools and for Candidates for University Matriculation Examinations.* By F. BARFF, M.A., Ch. Coll., Cambridge; Assistant to Dr. Williams, Professor of Chemistry, University Coll., London. London: Groves and Sons. 4s.

† *Laboratory Teaching: or, Progressive Exercises on Practical Chemistry.* By C. L. BLOXAM, Professor of Practical Chemistry, King's College London; Professor of Chemistry in the Department of Artillery Studies, Woolwich; etc. London: Churchill and Sons. 5s. 6d.

2. A brief description of all the practically important single substances likely to be met with in ordinary analysis, by which the learner may satisfy himself that his results are correct, and may at the same time become acquainted



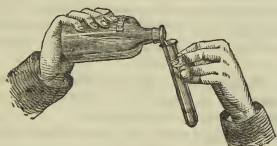
PRECIPITATION PROMOTED BY STIRRING (BLOXAM).

with the leading properties of the most important chemicals, and with the foreign substances which they are liable to contain.



SUBSTITUTE FOR BUNSEN'S BURNER (BLOXAM).

3. Simple directions and illustrations relating to chemical manipulation, not collected into a separate chapter, but given just where the learner requires them in the course of analysis.



ADDITION OF TEST TO LIQUID (BLOXAM).

4. A system of tables for the detection of unknown substances with the aid of the blowpipe.

5. Short instructions upon the purchase and preparation



WASHING BY DECANATION (BLOXAM).

f the tests, intended for those who have not access to laboratory.

The book does not presuppose any knowledge of chemistry on the part of the pupil, and does not enter into any theoretical speculation. It dispenses with the use of all costly apparatus and chemicals, and is divided into separate exercises or lessons, with examples for practice, to facilitate instruction of large classes. The Author hopes that it will be found to contain all the practical chemistry required for the various examinations, except for the highest science agrees, such as the B. Sc. and D. Sc. of the University of London. We have used the words of the author so far, as

they accurately describe the book. We must, however, state plainly, that Professor Bloxam's Laboratory Teaching does not elucidate principles, but simply trains the pupil to observe facts and to perform experiments. As a guide to the art of chemistry as practised in the laboratory, this little book cannot be too strongly commended; but we think it ought to be used in conjunction with a work that



BREAKING GLASS ROD (BLOXAM).

explains the science of chemistry. The woodcuts with which this book is properly illustrated reveal pretty little devices for performing simple operations, and explain more clearly than any written descriptions could, the conditions of successful manipulation. Through the kindness of Messrs. John Churchill and Sons we are enabled to give our readers a few examples.

In our next we shall probably notice other chemical books for students.

BOOKS RECEIVED.

A Course of Six Lectures on the Chemical Changes of Carbon. By WILLIAM ODLING, M.B., F.R.S., Fullerian Professor of Chemistry, Royal Institution. Delivered before a Juvenile Auditory at the Royal Institution of Great Britain, during the Christmas Holidays of 1868-9. Reprinted from the *Chemical News*, with Notes, by WILLIAM CROOKES, F.R.S., etc. London: Longmans, Green, and Co. Pp. xii. 162.

The Year-Book of Facts, in Science and Art, 1869. By JOHN TIMBS. London: Lockwood and Co.

Pocket Guide to the British Pharmacopœia. London: Robert Hardwicke.

Corner for Students.

CONDUCTED BY J. C. BROUGH, F.C.S.

The chemical formulæ employed in this section are based upon the new system of atomic weights, unless the use of the older system is specially indicated. In the *British Pharmacopœia* the symbols corresponding to those adopted here are printed in heavy Clarendon type. The chemical nomenclature generally used in this Corner for Students agrees with that adopted in the new edition of *Poore's Manual of Chemistry*, which is recommended as a text-book.

QUESTIONS.

I. FIRE-DAMP.—How many measures of atmospheric air are needed for the complete combustion of 100 measures of fire-damp (marsh-gas) in a coal-mine when an explosion takes place? [The composition of air by measure is 79.19 nitrogen and 20.81 oxygen.]

II. MIXED GASES.—Describe experiments by which you could distinguish a mechanical mixture of oxygen and hydrogen from the compound of those elements.

III. IODINE.—Twenty grammes of iodine are suspended in water, and one litre of pure sulphuretted hydrogen at 8° C. and 751 mm. is passed through the mixture. Find the weights of all the products.

IV. HYDROSTATIC TOY.—In a vessel not quite full of water, and closed at the top by a flexible membrane, there is a small glass balloon open at the lower part and containing sufficient air just to make it float. Explain the principle on which the balloon sinks when the membrane is pushed in.

V. STEAM.—What is the density of steam at 760 mm. pressure, superheated to 200° C.?

VI. AMMONIUM BROMIDE, B.P.—Explain the object of the starch test described in connection with this salt.

VII.—AMMONIUM CHLORIDE, B.P.—What weight of this salt in grains could be obtained by neutralising 1 pint of

Liq. Ammonia fortior B.P. with hydrochloric acid and evaporating to dryness?

VIII. COLOURS.—Required, the chemical names and formulae of chrome yellow, red lead, Scheele's green, Prussian blue, flake white, pearl white, zinc white, vermilion, and Brunswick green.

IX. SOLUTION OF CHLORIDE OF TIN.—Explain, with the aid of formulae, the process given in the Appendix of the Pharmacopœia.

X. SOLÆ ACETAS, B.P.—Give a process for preparing this salt in small quantities.

ANSWERS.

[See Questions in May number, page 356.]

I. COMMERCIAL ANALYSIS.—The proportions of the two constituents may be determined in the following manner: Take two equal portions of the crude alkali, estimate the carbon dioxide given by one portion when treated with sulphuric acid, and from the amount found calculate the proportion of carbonate, recollecting that 44 parts of carbon dioxide ($\text{CO}_2 = 44$) correspond to 106 parts of sodium carbonate ($\text{Na}_2\text{CO}_3 = 106$). Then take the other portion, mix it with about one-third of its weight of ammonium carbonate to convert the sodium hydrate present into carbonate, add a sufficient quantity of quartz-sand to prevent caking, and heat the mixture to expel water and ammonia; treat the dry residue with sulphuric acid, and from the amount of carbon dioxide liberated deduce the proportion of carbonate as before. The excess of carbonate obtained in this second determination is the converted hydrate, and as 106 parts of carbonate correspond to 80 parts of hydrate ($2\text{NaHO} = 80$) the proportion of the latter in the sample of crude alkali is easily calculated. For the estimation of the carbon dioxide various forms of apparatus are employed. In the convenient arrangement of Will and Fresenius two small flasks are so connected by glass tubing that a portion of the sulphuric acid contained in the one may be passed into the solution of the alkali contained in the other, while the evolved gas is compelled to pass through the sulphuric acid remaining in the first, in order that it may be dried before escaping. The weight of the flasks and their contents before the operation minus the weight after it, gives the weight of the gas evolved (see "Fownes," page 344). Should the crude alkali contain sulphites, hyposulphites, or sulphides, some sulphur dioxide, or sulphuretted hydrogen might be estimated as carbon dioxide and introduce errors into the analysis. By adding a small quantity of neutral potassium chromate to the solution in the flask before commencing the decomposition, the unstable sulphur compounds will be converted into indecomposable sulphates.

II. SPECIFIC GRAVITY.—The sp. gr. of the metal is 7.587. Dividing the weight of the stone by its sp. gr. we obtain 10.204 grains as the weight of an equal volume of water, and a similar operation gives us 6.25 grains as the weight of a volume of water representing the residual substance. The difference, 3.954 grains, is therefore the weight of a volume of water representing the 30 grains of metal removed by acid, and

$$\frac{30}{3.954} = 7.587 \text{ the sp. gr. required.}$$

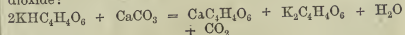
III. HYDROMETER.—The principle of this instrument may be thus briefly explained: A body floating in a liquid displaces its own weight of the liquid, consequently the volumes of different liquids displaced by the same floating body are in inverse proportion to the densities of the liquids.

IV. QUALITATIVE ANALYSIS.—The metals which may be precipitated by hydrochloric acid as chlorides, are: Lead (partially), silver, mercury (from mercurous salts), and thallium (from thallous salts). Lead chloride is soluble in much hot water forming a solution from which sulphuric acid throws down sulphate of lead. Thallous chloride is also soluble in hot water, but its solution gives no precipitate with sulphuric acid. Silver chloride is insoluble in hot water, but dissolves readily in ammonia. Mercurous chloride is insoluble in hot water and in ammonia, but is converted by the latter reagent into a black ammoniated compound.

V. PLUMBI NITRAS, B.P.—The black precipitate given with sulphuretted hydrogen is lead sulphide, PbS ; the white precipitate with sulphuric acid is lead sulphate PbSO_4 ; and

the yellow precipitate with potassium iodide is lead iodide, PbI_2 .

VI. ACIDUM TARTARICUM, B.P.—In the first stage of the process, acid potassium tartrate is decomposed by calcium carbonate, the products being insoluble calcium tartrate and soluble potassium tartrate, with water and carbon dioxide:



By the action of the calcium chloride, subsequently added, the potassium tartrate is converted into calcium tartrate, so that the potassium chloride alone remains in solution. On boiling the insoluble calcium tartrate with dilute sulphuric acid, double decomposition takes place, the products being tartaric acid and calcium sulphate. The greater portion of the sulphate is precipitated, and is separated by filtration.

VII. HYDROGEN.—The weight of a cubic yard of this gas at the pressure and temperature stated would be 952.447 grains.

The volume of 1 gramme of hydrogen at the standard pressure and temperature is 11.19 litres. The corresponding volume at 50°Fah. ($= 10^\circ \text{C.}$) is 11.6, for

$$273 : 273 + 10 = 11.19 : 11.6$$

Corrected for the pressure of 28 inches, the standard pressure being 29.9 inches, this volume becomes 12.387 litres, for

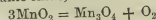
$$28 : 29.9 = 11.6 : 12.387$$

Now, as this volume weighs 1 gramme, or 15.432 grains, and as 1 cubic yard corresponds to 764.513 cubic decimetres or litres, the weight of the latter volume in grains is found directly by the proportion

$$12.387 : 764.513 = 15.432 : x; \\ \therefore x = 952.447 \text{ grains.}$$

VIII. OXYGEN.—The volume of oxygen at the temperature and pressure stated is 88.353 litres.

When exposed to a strong red heat the manganese dioxide loses one-third of its oxygen, and is converted into manganoso-manganic oxide, thus



We learn from this equation that 22.38 litres or two standard volumes of the gas may be obtained from 261 grammes of the dioxide, and we, therefore, calculate the volume obtainable from a kilogramme, thus:

$$261 : 1000 = 22.38 : x; \therefore x = 85.747 \text{ litres.}$$

To correct this volume for temperature we have the proportion,

$$273 : 273 + 12 = 85.747 : x; \therefore x = 89.516 \text{ litres.}$$

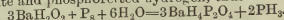
Then to correct this volume for pressure we have the proportion,

$$770 : 760 = 89.516 : x; \therefore x = 88.353 \text{ litres.}$$

[At a low red heat the dioxide loses only one-fourth of its oxygen, the residue being the sesquioxide. Taking this decomposition as the basis of calculation, the volume would be 66.265 litres.]

IX. GASES.—Chlorine may be distinguished by its yellowish green colour, its suffocating odour, and its bleaching properties. The three remaining gases may be distinguished by their relations to combustion. A lighted taper plunged into oxygen burns with increased brilliancy. Hydrogen extinguishes the taper, but the gas ignites, and burns with a slightly luminous flame. Nitrogen extinguishes the taper, and does not take fire itself.

X. PHOSPHORUS.—On heating phosphorus with solution of barium hydrate, the primary reaction yields barium hypophosphite and phosphoretted hydrogen, thus



PRIZES.

The First Prize for Solutions of Problems in our May number is awarded to

RICHARD J. MOSS, 2, Portfield-terrace, Rathmines, Dublin, who has previously carried off two prizes of equal value.

The Second Prize falls to

J. A. KENDALL, 32, Waterloo, Blyth, whose name headed our list last month.

Marks awarded for Answers.

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	E. Total.
Moss (1st prize) ..	10	5	5	7	4	8	10	6	4	5	7 71
Kendall (2nd prize) ..	8	5	5	8	4	8	9	6	4	5	6 68
J. W. Evans ..	9	5	5	4	8	8	8	6	4	5	6 66
A. Fraser ..	8	5	5	7	4	8	10	7	4	5	6 63
A. P. S. ..	5	5	5	5	7	4	8	7	6	4	5 62
A. E. L. ..	5	5	5	5	6	4	8	6	4	5	5 61
Solus ..	5	5	5	5	6	4	8	6	4	5	5 61
J. Trehanne ..	5	5	5	5	6	4	8	7	6	4	5 61
T. J. Findley ..	7	5	5	7	4	8	6	6	4	5	2 59
W. Greig ..	7	5	5	7	4	8	6	6	4	5	2 59
J. C. Thresh ..	7	0	5	6	4	8	6	7	4	5	6 58
J. Gregory ..	7	0	5	6	4	8	7	6	4	5	4 56
A. J. Pepper ..	6	5	5	7	4	8	0	6	4	5	6 56
H. Haighood ..	5	0	6	7	4	8	6	7	4	5	5 54
W. Lucas ..	7	5	5	4	4	8	3	5	4	5	4 54
J. N. Bentley ..	7	0	4	7	4	7	5	4	4	5	4 51
G. Pool ..	7	5	5	6	4	8	6	7	4	5	4 51
J. D. D. Thomas ..	7	—	3	7	4	8	0	7	4	5	5 50
J. Paulin ..	3	—	5	4	4	8	5	5	4	5	5 49
Edina ..	7	0	4	6	4	8	0	3	4	5	5 46
V. Jolly ..	3	4	—	5	4	8	6	4	4	5	3 40
N. Nobis ..	3	0	5	5	4	7	0	6	4	5	0 39
I. Tansley ..	—	0	5	6	4	8	0	0	4	0	2 29
Contentus ..	—	0	0	6	4	7	0	0	4	0	2 26
J. Robinson ..	—	0	5	4	5	—	—	—	4	0	1 18
Xerxes ..	—	0	3	—	—	—	—	—	—	—	3

Books offered as First Prizes.

- Attfield's *Introduction to Pharmaceutical Chemistry*. (Van Voorst.)
 Brooke's *Elements of Natural Philosophy*. (Churchill.)
 Conington's *Handbook of Chemical Analysis*, with Tables of Qualitative Analysis adapted to the same. (Longmans.)
 Eliot and Storer's *Manual of Inorganic Chemistry*. (Van Voorst.)
 Fownes's *Manual of Elementary Chemistry, Theoretical and Practical*. (Churchill.)
 Fresenius's *Qualitative Analysis*. (Churchill.)
 Ganot and Atkinson's *Elementary Treatise on Physics*. (Longmans.)
 Garrod's *Material Medica*, with Modern Chemical Notation. (Waltton.)
 Noad's *Chemical Analysis, Qualitative and Quantitative*. (Roeve.)
 Northcote and Church's *Qualitative Analysis*. (Van Voorst.)
 Royce and Headland's *Material Medica*. (Churchill.)
 Wilkenson's *Chemistry for Students*. (Clarendon Press.)
 [Any other scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.]

Books offered as Second Prizes.

- Barth's *Introduction to Scientific Chemistry*. (Groombridge.)
 Bloxam's *Elementary Chemistry*. (Churchill.)
 Church's *Laboratory Guide for Students in Agricultural Chemistry*. (Van Voorst.)
 Gallows's *First Step in Chemistry*. (Churchill.)
 Hofmann's *Introduction to Modern Chemistry*. (Waltton.)
 Huxley's *Lectures on Elementary Physiology*. (Macmillan.)
 Oliver's *Lectures on Elementary Botany*. (Macmillan.)
 Poite's *Elements of Exact School Edition*. (Longmans.)
 Roscoe's *Lectures on Elementary Chemistry*. (Macmillan.)
 Wurtz's *History of Chemical Theory*. Translated by Watts. (Macmillan.)
 Wurtz's *Introduction to Chemical Philosophy*. Reprinted from the *Chemical News*.
 [Any other scientific book which is sold for about five shillings may be taken as a second prize.]



ASHTON AND DUKINFIELD CHEMISTS' ASSOCIATION.

MR. WATERHOUSE'S SOIRÉE.

Owing to recent legislation, the chemists and druggists of Ashton and Dukinfield have formed an association for the due representation of their common interests and also for the promotion of social feeling and mutual good-will. One of the special objects of the Association is to enable assistants and apprentices to share the advantages offered by the pharmaceutical courses which have been established at Owen's College, through the exertions of the Manchester chemists and druggists. At the first meeting of the Association, Mr. W. H. Waterhouse, the oldest member now in business, was appointed president; Mr. W. Bostock, vice-president; Mr. Samuel Neal, treasurer; and Mr. Edwin Fisher, secretary.

On Thursday evening last, Mr. W. H. Waterhouse, to celebrate his 30th year of business, and also to inaugurate the newly-formed Association, invited all the members of the trade, principals, assistants, and apprentices in Ashton, Dukinfield, Stalybridge, Oldham, and Hyde, to a social gathering in the Mechanics' Institute, Ashton. The invitation was responded to very heartily, and a very influential deputation from Manchester were present. Ample provision was made for the satisfaction of the inner man, in the shape

of coffee, veal pies, sandwiches, etc. The tables were graced by the presence of Mrs. W. H. Waterhouse, the Misses Waterhouse, and Mrs. Bostock, who were kept well employed for some time attending to the wants of some fifty to sixty guests. For the mind's entertainment various efforts were put forth by different gentlemen of the trade in the town, the articles collected forming quite a miniature museum. The articles displayed were too numerous to be mentioned in detail, but among the chief contributors were Messrs. Mortimerhead, Woolley, Mather, Tomlinson, Pielbold, Brown, Cockshot, all of Manchester; Messrs. Bostock, Armitage, Howarth, etc. etc. A cabinet of materia medica specimens was particularly attractive to the younger portion of the guests, and the room was beautifully perfumed as well as greatly ornamented by a very choice collection of flowers, contributed by Mr. Armitage of Dukinfield. A collection of ferns from the Kersal Moor Nurseries must not be forgotten, forming as it did one of the most beautiful we remember to have seen. After refreshments, a meeting was held in the board-room, presided over by Mr. J. Waterhouse, who opened the meeting with a few appropriate remarks, and then called upon Mr. W. H. Waterhouse, who read an excellent paper on the history of the drug trade in Ashton during the last thirty years. Great changes had occurred through that eventful period. The oldest chemists now living, who were in Ashton when Mr. Waterhouse came, in 1839, are Mr. Bell and Mr. Sladin. Both retired from active life many years ago. The number of druggists' shops has been trebled, and there is a marvellous advance in appearance and style on the show they made in the "good old times." The town itself has been made over again. It stands very different, and that is all. In every department old things have passed away, and its most distinguished resident, wherever found, need not be ashamed to say, "I live in the parliamentary borough of Ashton-under-Lyne." A commercial gloom now rests upon us, but we must wait and work; the sun of prosperity will again shine, and we shall be taught by our trials lessons of wisdom and trust never understood before. Mr. W. Bostock then read a most humorous poem of his own composition some twenty years ago, entitled "The Druggists' Lament," which was followed by some pithy remarks by Mr. Sluggs of Manchester, who greatly surprised the meeting by stating, that forty years ago he was for two months "on trial" for a druggist's apprentice in Stamford-street, Ashton. Various addresses by friends from Oldham, Hyde, etc., followed, and the meeting concluded with votes of thanks to the contributors, etc., the most hearty and cordial being reserved to Mr. W. H. Waterhouse for his very liberal hospitality.

DINNER AND TESTIMONIAL TO MR. JOHN MACKAY.

On the evening of Thursday, the 25th ult., a party of about fifty gentlemen assembled at the Douglas Hotel, Edinburgh, to present a testimonial to Mr. John Mackay, pharmaceutical chemist. The chair was occupied by Mr. H. C. Baildon, and Mr. Ainslie discharged the duties of croupier. Among those present were Professor Archer, Dr. Stevenson Macadam, Mr. Donald Beith, Mr. Henry Matthews, from London; Dr. Robertson, from Glasgow; Mr. E. C. C. Stanford, from Dalmar; and the President and Vice-President of the North British Branch of the Pharmaceutical Society. The testimonial comprised several handsome pieces of plate, the most important article being a silver salver upon which the arms of the Pharmaceutical Society, with representations of medicinal plants, were beautifully engraved.

The usual loyal and patriotic toasts having been given from the chair and duly honoured,

The CHAIRMAN then rose, and said: In proposing the health of our friend and guest, Mr. John Mackay, my only regret is that it has not fallen into the hands of one more able than myself to do it justice. Little, however, requires to be said beyond a mere enumeration of the important services gratuitously rendered during the long period of twenty-eight years to the Pharmaceutical Society of Great Britain, and more especially to the North British branch, to show the claim our friend has upon our gratitude and esteem. Whilst I doubt not that the pieces of plate now before us

will convince Mr. Mackay that his arduous services have not failed to be appreciated by us—I may mention that up to the year 1852 no record was kept of the work done here during the eleven previous years, although many meetings were held. In 1852 we obtained our first Pharmacy Act, the correspondence connected with which must have involved a large sacrifice of time and labour. Subsequently to this Act, and up to the present time, no less than forty-nine meetings for examination were held, at which 376 candidates were examined—all of which meetings were arranged and attended by our honorary secretary. Since 1852, sixty-eight scientific meetings have been organised, the greater number of which would certainly not have been given at all but through the strenuous exertions and personal influence of our friend. In addition to these, fifty-seven meetings of council and seventeen annual meetings were held, at all of which Mr. Mackay acted as our honorary secretary. These taken in the aggregate represent an amount of time and labour voluntarily given which I hesitate not to say no other member of Scotland was prepared to give. But our friend did all this unobtrusively and unostentatiously, with an object kept steadily in view—viz., the advancement of the science of pharmacy in this country, through the instrumentality of the Pharmaceutical Society of Great Britain—and in this he has been successful. The original impulse which has led him to go through this amount of labour springs, I doubt not, from his personal friendship with the founder of our society, the late Jacob Bell, whose memory must always be held by us all in grateful remembrance. In 1861, Mr. Mackay was elected a member of the London Council, and has attended no fewer than thirty-four times at the meetings of the Board in Bloomsbury-square. And now another important service comes to be named. When he first became a member of the London Council, the *Journal* of the society was published at a loss of no less than £608 a year. Mr. Mackay felt convinced that this heavy loss might be avoided, but his views on the subject were considered impracticable and chimerical. However, on his return to Edinburgh, he obtained estimates for the printing of the *Journal*, which confirmed him in his opinion, and at the next meeting of Council which he attended in London he carried his point; and this reform has produced the most gratifying results. The first year he effected a saving of £434, and now, in place of a loss, a clear profit accrues to the Society from the *Journal* of between £300 and £400 a year. I would claim the indulgence of the company whilst I read a few extracts from a mass of letters received by Mr. Ainslie and myself from our Southern brethren, which show that our fund has won the esteem of those gentlemen, a number of whom have voluntarily applied to be permitted to add their names to our Scottish list, and which it would have been ungracious to refuse, although it was originally intended to confine our testimonials to members north of the Tweed. (Mr. Baidon then read letters from the President of the Pharmaceutical Society, Mr. Sandford, Professor Bentley, Professor Attwood, Mr. Hills, Mr. Benridge, Mr. Brady). These extracts, he continued, must be most gratifying both to Mr. Mackay and ourselves. After this brief statement, there only remains the pleasing duty of presenting the pieces of plate, in the name of the subscribers, to Mr. Mackay. The inscription upon the salver expresses our feeling towards him. It is as follows:—"Presented to John Mackay, Esq., Ph. Ch., F.C.S., with other pieces of plate, value £150, on the 27th May, 1869, by his professional brethren, in token of their esteem; and in recognition of his arduous services, gratuitously rendered to the Pharmaceutical Society of Great Britain, as honorary secretary for Scotland, during the long period of twenty-eight years." I now ask you to dedicate a bumper to his health, with a sincere wish that he may be spared to give the Pharmaceutical Society of Great Britain his valuable services.

MR. MACKAY, who was received with applause, said: There are occasions when, it has been said, the heart is too full for utterance, and as I now rise to reply, I feel most truthfully that no words I can express will convey to you who are now present a sense of my feelings at this time. To be able simply to thank you and assume my seat would be, in one point of view, a relief, because, were my silence fairly construed and understood, it would be the best reply to all those who have contributed towards the very handsome

testimonial which has just been presented to me in such eloquent and kind terms by my friend Mr. Baidon. I cannot, however, feel feeling that it might appear to some singularly strange if I did not make an effort to say a few words in connection with an event which must ever be looked upon by me as one of the most interesting, if not important, in my life's history. In receiving and gratefully acknowledging these beautiful and substantial tokens of your appreciation and regard, it would be mere affectation were I to deny that I have spent much of my time during the last twenty-eight years in the endeavour to improve and elevate pharmaceutical education. Pharmacy in Great Britain was, as many round the table well know, at a very low ebb when our Society commenced its operations, and continued in a comparatively feeble state for many years. Stimulated by the example and zeal of many noble-minded men, I felt eager and anxious to assist in raising the standard of education in pharmacy, so that the ordinary, and in many cases uneducated, dispensing druggist, might become the more dignified and polished pharmacist. Many years ago, I once heard from the lips of the ever-to-be-remembered and admired founder of our Society the feeling of shame with which, in the days of the passport system, he, on entering France, declared his occupation to be that of chemist and druggist, for he felt at a loss to understand why, though in the same position as the dispensing chemist on the Continent, he yet should occupy a niche so far beneath him in all that appertained to scientific acquirement and recognition. What, however, has happened since these words were uttered? Well may we say—

"Whether doing, suffering, or forbearing,
We may do miracles by persevering."

Certain I am that many of those who were interested in the progress of pharmacy, and who watched our onward movement—slowly, it is confessed, but not the less surely—can truly at the present time join in expressing wonder and amazement at the results which have attended our efforts. When I look upon the elegant testimonials which your kindness and that of others has bestowed upon me, I do so with deep and very peculiar feelings. I think of the past, linked with many endearing and, in some respects, sad associations. I remember affectionate and kind friends who have long since ceased from their labours—I think of many a hard-fought battle, of many an anxious hour, of difficulties to surmount, prejudices to overcome, and the unflinching desire that name and position should be obtained—I think of the resting-place we reached by our first legislative enactment of 1852, after the passing of which we only paused to gain fresh strength, and renew the fight, if possible, more warily and earnestly than before. Another glance, and I am told of a battle fought and a victory won—I am told that, by compulsory powers, we are now on the high road to fame; for who can doubt that we may yet find among the pharmacutists of this country, such men as Roubiquet, Pelletier, and Caventon? But your testimonial goes farther, for not only does it remind of the past and tell of the present, but by another glance we are carried on to the future. It is not too much to say that in days yet to come we shall have springing up among us a College of Pharmacy—an institution which, if once formed, will not be long from its emanation in rendering its name famous, not only in this sea-girt isle, but throughout the whole habitable globe, wherever chemistry and pharmacy are recognised in their proper sphere. That such a period will arrive, I have neither doubt nor fear. It is true I may not be here to see, but come when it may—be it sooner or later, and be its centre in London or elsewhere—I fondly trust that, as we have so long conducted with so much success a branch of our Society here, so in like manner the smaller centre of our new college may find a resting-place in this our native city, which has for so many years shed a lustre on all that belongs to science, literature, and art. Gentlemen, let me again thank you with all the sincerity which those few words and warm unspoken feelings can convey, and, in the words of a well-known author, say, "Good go with you all."

Among the other toasts given in the course of the evening were—"The Pharmaceutical Society," by Professor Archer; "The Honorary Members," by Mr. Kinnimont; "The Medical Profession," by Mr. Napier; "Pharmaceutical Education," by Mr. Kemp; "The Edinburgh Council," by Mr. Robertson.

LAW AND POLICE.

LIQUID FUEL OCCASIONING A NUISANCE.

On the 5th inst., Mr. John Schwartz, the proprietor of a sugar refinery in Pleasant-row, Pelham-street, Mile-end New Town, attended before Mr. Ellison, at Worship-street, in answer to an adjourned summons, which charged him with having, in contravention of the provisions of the Nuisances Removal Act, 18 and 19 Victoria, cap. 20, sec. 27, occasioned a nuisance and injury to health by burning dead oil, or creosote, in lieu of coal. Mr. Turner, clerk to the Board of Works of the Whitechapel district, at the instance of whom the summons had been taken out, supported the complaint; Mr. H. B. Poland, barrister, was for the defendant. It appeared that the liquid known as creosote, which is a refuse in the manufacture of gas, was at one time much employed as a preservative of timber, but that it fell into disuse on the larger railways being completed, at a time when the demand for it had almost ceased. The defendant discovered that it was admirably adapted for heating purposes, inasmuch as a pound of the oil, the cost of which is one penny, will evaporate nearly twice as much water as a corresponding weight of coal. Accordingly, erecting a large tank for the reception of the creosote, he heated two furnaces of 140-horse power with the oil, which was conducted to them by means of a pipe, and which was disseminated by steam in a fine spray over a fire made up of coke. It was expected that neither smoke nor effluvia would be emitted; but in a short time it became a matter of general complaint that the use of the creosote was attended with the most injurious consequences to the health of those who lived in the neighbourhood. After hearing the evidence, Mr. Ellison said there was no doubt that a nuisance was caused, and it was necessary that it should be abated. It had been urged that some persons were not affected by the effluvia, but it had been proved that several had been, and the health of those, to whom it caused vomiting and pain, must be studied. Under these circumstances he was ready to make an order for the abatement of the nuisance, unless at this, the eleventh hour, some arrangement could be effected with the Board of Works, which would obviate the necessity of such an order and do away with the nuisance. A consultation was then held between the parties, and ultimately it was announced that the defendant had agreed to discontinue the use of the creosote, to reconstruct his furnaces in accordance with the provisions of the Smoke Nuisance Prevention Act, and to employ coal only for the future.

ALEXANDER AND WIFE v. CROUCH.

This was an action for personal injuries, and was tried at the Ball Court on the 8th inst. Alexander kept a public-house. The defendant was a chemist. On the 1st of April last the female plaintiff was being driven along a lane leading from Fulham to Acton, when they met the defendant driving a waggone with his family, and it was alleged that by the improper driving of the defendant, a collision occurred between the two vehicles, and Mrs. Alexander received a black eye and a sprained ankle.

Many witnesses were examined on both sides, and, as is usual in such cases, their evidence was of the most contradictory nature.

The jury eventually gave a verdict for the plaintiffs—damages, £20.

STEALING SOAP AND PERFUMERY.

On the 8th inst., John Tilley, an elderly man, described as a labourer, was indicted at the Central Criminal Court, for stealing a quantity of glycerine soap and several bottles of eau-de-Cologne.

Mr. G. S. Griffiths prosecuted; the prisoner was defended by Mr. Straight.

On the evening of the 4th of May the prisoner was seen in Newgate-street by two City detective officers, named Lythall and Randall, and observing that he carried a large bundle and that his pockets were full, they stopped him and asked him what he had about him. He at first denied that he had anything, but afterwards admitted that it was soap and perfumery. His answers were very evasive, and he was

taken into custody. It was then found that the prisoner was employed at some baths in Newgate-street adjoining the drug warehouse of Mr. Mather, and from a statement he made, it appeared that he went from one house to the other by means of a ladder, and that he obtained the goods from the first floor.

The jury found the prisoner guilty, and he was sentenced to twelve months' hard labour.

ACTION TO RECOVER AN AMOUNT OWING FOR DRUGS.

At the County Court, Chapel-en-le-Frith, on the 12th inst., Joseph Cook, druggist of that town, sued John William Whitehead, now residing at Oldham, for £13 13s. 11d. for drugs, etc., supplied to defendant, who at the time they were supplied was practising as a surgeon to railway work-people. Mr. Palmer, who appeared for defendant, admitted the debt, but said that defendant had been adjudicated a bankrupt about a year ago at Bristol, though he was not able to produce his order of discharge, as defendant had omitted to take it out.—His Honour (Joseph St. John Yates, Esq.) said he had no alternative but to make an order.—Mr. Palmer said the defendant could not pay more than 5s. per month; he was only earning a small sum. Defendant was not a qualified medical man.—Ordered to pay 10s. a month.

ACCIDENTS.

CYANIDE OF POTASSIUM DISPENSED FOR CARBONATE OF AMMONIA.

The accidental poisoning of Mr. Frederick Darley Grattan Guinness, of Beaumont House, Drumcondra, is a sad instance of the results attending infractions of the regulations adopted by dispensing chemists. The following particulars of the case are given by the Dublin correspondent of the *Times*—

"The inquest on the body of Mr. Guinness was resumed, on the 8th inst., and resulted in a verdict confirming the suspicion that the deceased lost his life from the effects of poison compounded by mistake. Dr. Darley, Q.C., appeared on behalf of the relatives of Mr. Guinness, and Mr. F. Macdonogh, Q.C., for Messrs. Hamilton, Oldham, Long, and Co., in whose establishment the draught was compounded. It is right to observe that they are highly respectable chemists, possessing qualifications above the ordinary class of licensed apothecaries. The facts adduced in evidence were briefly these:—The deceased was in feeble health, and suffered especially from an organic disease of the heart, which was hypertrophied and had a fatty deposit. Dr. William Burke, who attended him, prescribed a tonic and stimulant containing ammonia. On Friday evening he called at the establishment of Messrs. Hamilton and Oldham, in Grafton-street, Dublin, to get a bottle of the mixture. An assistant to whom the prescription was handed took down a bottle which was plainly labelled 'carbonate of ammonia,' but the contents were *cyanide of potassium*. The bottle had been given to a storekeeper, a youth 17 years of age, to replenish it, and he filled it from a jar similar to one containing ammonia. The two jars were of the same shape, but slightly different in size. There was no label on the one containing the poison, although it is the rule of the house to have the word 'caution' printed on such vessels. This storekeeper, young as he is, had been six years in the business. According to the directions of the firm, all store bottles ought to be sent to their house in Sackville-street to be replenished, and no bottle should be filled under any circumstances except in the presence of two assistants. Unfortunately, when Mr. Guinness called with the prescription on Friday evening (the 4th inst.), it was after six o'clock, and there were only two assistants in the establishment, and the bottle being required in a hurry, the storekeeper was sent off alone to fill it. All the assistants bear excellent characters. The one who compounded the prescription was kept under arrest, but as the evidence showed that he was misled by the label on the bottle in the shop, the jury held him blameless, and he was discharged. In their verdict they censured the firm for not having taken sufficient precaution to protect the public.

ACCIDENTAL POISONING—RESULT OF ILLIBLEGIBLE PRESCRIPTIONS.

On the 9th inst., Mr. Driffield, coroner of Wigan, resumed an inquiry, which had been adjourned, on the body of Edward Norton, of Robin-lane End, near Wigan, who had died on the 3rd inst. from taking a powder which had been obtained from the Liverpool Eye and Ear Institution. The following additional evidence was adduced:—

Mr. Edward D. McNicholl, clerk to Mr. Bickerton, honorary surgeon to the Institution, said he had no recollection of the deceased, but he had no doubt he dispensed the medicine. The prescription ordered a wash for the eyes and three pills. The wash directed either contained belladonna or poppy heads. He was not prepared to say which the letter on the prescription [P or B] related to. His belief was that he read it as B, and gave belladonna, which was a deadly poison, and of which the remains on the spoon were a portion. Invariably the preparation for the wash was wrapped in a paper upon which was printed "Poison: to be put in a quart of water and used as a wash for the eyes."—The Coroner: It does not necessarily follow that one was used in this case.—Witness: One would be used, sir, unless some extraordinary mistake was made.—The Coroner: You hear from the evidence that there has certainly not been one used in this case.

—Witness: The only way in which I can account for it is that the deceased crushed it in bringing it home, and the preparation permeated the paper and rendered the inscription illegible; or else that he changed the paper.—The Coroner: According to the evidence that is impossible. Has it previously occurred to you that these directions might become illegible?—Witness: It has; but still the patients all receive instructions both from the consulting surgeon and from myself. I have given this preparation thousands of times without accident. Yesterday we had 150 cases, and in 50 or 60 belladonna was ordered, and poppy heads only in one or two.

—The Coroner: Don't you think you might adopt some better means for the safety of these poor people? We know many of them are very ignorant.—Witness: With regard to that, Mr. Bickerton has some statistics to show how extremely careful we are, and that we never had an accident before.—Mr. Hibbert Taylor, of Liverpool, surgeon and physician, said the prescription produced was in his writing. It ordered a fermentation of poppy with alum, but the "P" might have been easily read as "B." Mr. McNicholl was very careful and competent, and out of 800,000 cases at the Institution they had never had an accident. The authorities would do their best to prevent such a thing occurring again.—The jury returned a verdict of death from an overdose of belladonna, inadvertently taken.—The Coroner suggested that if the mistaking of "P" for "B" was possible, it would be better to write the words in full.

DEATHS FROM SUFFOCATION.

A sad accident occurred on the 7th inst., at the chemical works of Messrs. Gaskell, Deacon, & Co., Widnes, by which two men were suffocated. In the yard attached to the works is a large covered sewer, into which the drainage from Messrs. Gaskell and Deacon's works and other works in the neighbourhood is emptied, en route to the M-resey. This sewer is periodically cleaned, and the portion in Messrs. Gaskell's yard was entered by four men for that purpose. They had not been down long before one returned, declaring that the gas was too strong. The foreman then went down, and he shortly returned. Doubts were entertained for the safety of the other two, and a number of men volunteered to go to their assistance. Two inexperienced men descended, but the gas overpowered them, and they were shortly afterwards drawn out quite dead. Other volunteers ventured in search of the two men who went down at the first onset, and were successful in rescuing them before they were too far affected, but they still remain in a dangerous state.

ACCIDENTAL POISONING BY AN OVERDOSE OF CORDIAL.

On the 11th ult. a coroner's inquiry took place at Leeds on the body of a child who had died from an overdose of medicine. It appeared that the child had been suffering from a chest affection, and the mother, in her anxiety to alleviate his sufferings, had procured a bottle of medicine known as "Washington's Cordial." A small quantity of the medicine was administered to him on the previous Friday night, and it soothed him into a sleep, out of which he never awoke.

On the following day Mr. Mann, surgeon, saw the child, and finding him under the influence of a narcotic, tried various remedies, but could not return him to consciousness. It transpired that the bottle containing the cordial was labelled "Poison," and five drops were recommended to be given to a child one month old, and ten drops to a child two months old. The cordial consisted of opium and aniseed, and Mr. Mann stated to the coroner that the child was of a weakly constitution, and that it was suffering from an ailment in which opium should not have been administered. The jury found that death had been caused by an overdose of cordial, containing opium, given by the mother to alleviate pain, and without culpable negligence.

ACCIDENTAL POISONING BY HELLEBORE MISTAKEN FOR GENTIAN.

On the 25th ult. a curious case of poisoning occurred at Sheffield, in which three persons nearly lost their lives. A man named Heeley, his son and daughter, were taken to the Public Hospital and Dispensary, the men in a state of collapse, and the girl suffering severely. The symptoms developed being those of poisoning, prompt treatment, in the shape of emetics and the use of the stomach-pump, was given by the officials. In the course of the afternoon they began to rally. It appeared that these persons had been in the habit of taking a decoction of gentian root as a stomachic. They had obtained a supply of the root on the preceding day from a druggist's shop in the neighbourhood, and from this the required decoction was manufactured. The tonic was partaken of by the father and son freely, but the girl fortunately only took one spoonful. Half-an-hour afterwards they were seized with violent vomiting. On the medical officers of the hospital examining the root, they discovered that whilst a portion of it was genuine gentian, there was also some black hellebore. It is reported that the explanation given by the druggist is that he sold the root just as he obtained it from the wholesale house with which he deals, and that the mixture must have taken place before it came into his possession. The poisonous root bears a resemblance to the innocent one it is true, but both druggist and sufferers may be congratulated that, through the ability of the medical officers of the Sheffield Hospital, the case had not a more serious termination.

LUCIFER MATCHES.

On the 21st inst. a child, named Mary Ann Briscoe, died at Madeley, Staffordshire, from sucking lucifer matches. It appeared deceased was left at home with a younger sister, and reaching some lucifer matches, which had been carelessly left on a shelf, placed them in her mouth. This, however, was not discovered until the child was seized with sickness and convulsions, the vomit smelling of phosphorus. The poor child died within an hour after being seized with convulsions.

GOSSIP.

About 12.30 p.m., on Saturday last, a fire was discovered in the laboratory, of Messrs. Southall and Dymond, chemists, Bull-street, Birmingham. The fire brigade was soon on the spot, and with portable engines the flames were quickly subdued. Fortunately the conflagration was confined to the one building, for had the flames communicated to an adjoining one, containing some very inflammable materials, the result would have been of a sad and disastrous character. The proprietors are covered from loss by insurance.

The Kirkington Hall estate, Cumberland, has been sold by private contract for £49,000, to Mr. Edward Mucklow, of Grange, Lancashire, an extensive dyslaster.

Trade Memoranda.

Will readers kindly bear in mind, that the receipt of the CHEMIST AND DRUGGIST in a green wrapper is an indication that with that number their subscription expires. A receipt will be sent for remittance if a stamped directed envelope be enclosed therewith, but not otherwise.

Messrs. Stone and Co., of Exeter, have recently opened an establishment in London, at 481, Oxford-street, for the purpose of supplying their proprietary preparations, muri- cidane, etc., wholesale and retail.

The Register of Pharmaceutical Chemists and Chemists and Druggists, which appeared last month, embraces in all some eleven thousand names. We have, of necessity, devoted so much time to the minute examination of this work, having gone through every page for the purpose of correcting our own list, that we have earned the right of criticism. The literal accuracy of the whole, as far as the compilation and revision is concerned, is in a work of such a character simply marvellous. We have not discovered a misprint nor a misplaced comma from beginning to end. We have noted the absence of a few names which we know should have been there, but this is the fault of the chemists and not of the registrar. One remark, however, we are bound to make. The work is not a directory, nor can it be used as such except in a most wasteful manner. A firm sending circulars to every name therein would address the same establishment in many cases twice, and in some instances a dozen times over. It should also be remembered, that except in the case of those connected with the Society, no notice is taken of Irish or Colonial druggists. With the assistance of this Register, however, we shall for the future be enabled to maintain our own list as the most perfect chemists' and druggists' directory in the world.

Mr. Farrant, of Ottery St. Mary, Devon, a chemist of good means, and greatly respected, but unhappily the victim of a delusion that he was getting poor and would die in the workhouse, has, while under the influence of that delusion, put an end to his existence with a strong dose of prussic acid. There seems to have been no ground whatever for the fears which had so disastrous an effect on Mr. Farrant's mind.

The retail branch of the business carried on by Evans, Mercer, and Co., Montreal, has been transferred to C. G. Wilson.

The following prescription was actually written by a London surgeon, not very far back in this nineteenth century.—*R. Liq. Arsenicalis* ʒj. Take four drops in water three times a day just after meals. Surely the directions need not have been so explicit. Would it not have sufficed to tell the patient merely to wet her tongue with the liquid three times a day, etc.?

Messrs. Davy, Yates, and Routledge have removed into their new and extensive premises in New Park-street, Southwark.

Messrs. Millard and Son, patent medicine dealers, of 44, Barbican, have bought the druggists' sundry business of Messrs. Fitch and Nottingham, which they will in future carry on in conjunction with their own.

Mr. J. H. Whitby, of 47 and 49, Mortimer-road, London, N., has purchased the perfumery business of Ede & Co., late of Cannon-street. The preparations of this firm have long held a world-wide reputation, which will not suffer in Mr. Whitby's hands.

GAZETTE.

BANKRUPTCY ANNULLED.

LIVSEY, JOSEPH, cattle food manufacturer, Norton Folgate.

BANKRUPTS.

ABEL, WILLIAM, Brownhills, near Walsall, druggist.

BROOKHOLM, CHARLES, Barking, chemist.

COLEMAN, W. W., surgeon, Woolwich.

GREEN, E., chemist, Downham Market.

ONIONS, HENRY, chemist, Penkridge.

OWEN, SAMUEL, Cheltenham, ginger-beer manufacturer.

PACON, H. W., Druggist, West Drayton.

R. BRETTS, STEWART BLACKER, Park-terrace, South Norwood, apothecary.

SHARP, JOHN, druggist, Goolse.

THURGDAN, W. C., surgeon, Plaistow.

TOULINSON, WILLIAM, Marple-bridge, chemist.

WESTON, CHARLES, chemist, Stockton-on-Tees.

WILLIAMS, DAVID, and WILLIAMS, ALFRED, Aberaven, soda-water manu- facturer.

WRIGHT, JAMES, chemist, Greenwich.

PARTNERSHIPS DISSOLVED.

BRAMAN and HUNT, apothecaries, Upholland, Lancaster.

BOWES and ARMSTRONG, druggists, Whitthaven.

TOPPE and SPOONER, surgeons, Great James-street, Bedford-row.

FOOTERS and LANE, wholesale chemists, George-street, St. George's, East.

GILBERT, GILBERT and Co, wine merchants, Oxford-street.

GOLDING, LIPPMAN, HARRIS and LAZARUS, Tavistock-news, Middlesex,

manufacturing perfumers, so far as regards Henckish Lazarus.

GOLDING, HARRIS and LIPPMAN, Tavistock-news, perfumers, so far as regards Morris Lippmann.

GRIFF, WORDEN, and FREEMAN, soap makers, Hardsfield.

HARRIS and GOLDING, Tavistock-news, manufacturing perfumers.

KNEE and HENSMAN, Mark-lane, wholesale soap dealers.

PHILPOTTS and PHILPOTTS, Newnham, chemists.

SCHOOLING and SCHOOLING, manufacturing confectioners, North-side, Bethnal-green.

STERRY and STERRY, oil merchants, Cannon-street.

STRINGER and LLOYD, chemists, Goswell-road.

WATTS and CARTER, surgeons, Liverpool.

VINT and VINT, chemists, Bow.

SCOTCH SEQUESTERATIONS.

CLARK, J. F., oil and colour merchant, Glasgow.

THOMPSON, A. B., surgeon, Baccall.



THE AMENDED PHARMACY BILL.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—Your last number contained a letter from me, in which it was stated that the dis-ussion in Parliament on the amended Pharmacy Bill would come on on the 29th of May, etc., whilst in another part of your journal it was stated that the discussion had taken place on the 29th of April. Will you allow me kindly to explain that my letter was written at the suggestion of one or two of the leading druggists here, who, with myself, had been mi-l-el by a positive statement in the May number of the *Pharmaceutical Journal* to the effect stated in my letter to you. I feel it is due to myself to give this explanation, with your kind permission.

Yours very truly,

J. T. SLUGG.

Manchester.



An anonymous correspondent from Southampton is thanked for his hint, which has been borne in mind.

We have also to thank our correspondent (Mr. W.) from Glasgow, for the polite note in which he has referred to our omission in the Almanac, which shall have attention.

J. B.—Decoction of alces should certainly be sent out bright, and not shaken up with the deposit, which we are aware is formed after straining through flannel. It is a preparation which is worth the best-oval of considerable care, and always pays for using the finest drugs.

A. B. G.—Castor oil pills must be fictitious. It is evident that if they owed their purgative properties to the drug after which they are named, a bandul would scarcely be more than sufficient for a dose. 2. The names are there.

Mr. C. RESTRAW (Sandhurst, Victoria,) would like more price lists inserted in this journal. He says "they are very useful in this country." We recommend this to the notice of advertisers.

DENTIST (Bristol).—It is not illegal to assume the title of Surgeon-Dentist, although a man would be liable to a penalty if he described himself as Surgeon and Dentist. The case has been tried. The College of Surgeons provides an examination, and grants the degree of Dental Licentiate, and there are also Associates of the Odontological Society. These titles are, of course, protected.

W. R.—Advertisement declined. Stamps will be returned on receipt of address.

E. Fisher (Ashton).—We shall be glad to receive brief reports of the proceedings of your Association.

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[The following list has been compiled expressly for the CHEMIST and DRUGGIST by L. de Fontainevean, Patent Agent, 4, South-street, Finsbury, London; 10, Rue de la Fidélité, Paris; and 33, Rue des Minimes, Brussels.]

Provisional Protection for six months has been granted for the following:—

- No.
1139. M. Samuelson, of 4, County-buildings, Kingston-upon-Hull, Engineer, and C. Eskrett, of Kingston-upon-Hull, Oil Mill Manager. An improved combined metallic envelope and filling plate to be used in expressing oil or fatty matters from seeds or other oil or fat-yielding substances, and especially in the manufacture of oil cake. Dated 13th April, 1869.
1260. J. Major, Veterinary Surgeon, and W. Wright, both of Swallow-street, and G. H. Jones, of the Alpha-road. A new or improved manufacture of white lead, and apparatus employed therein. Dated 24th April, 1869.
1359. D. P. Wright, and C. Butler, of Birmingham, Lamp Manufacturers. Certain improvements in lamps, for burning paraffin and other hydrocarbon oils. Dated 3rd May, 1869.
1370. W. E. Gedge, of Wellington-street, Strand. An automatic carbonic acid gas apparatus for raising liquids and for the preservation of beer. Dated 4th May, 1869.
1388. T. Welton, of 13, Grafton-street, Fitzroy-square, maker of Artificial Limbs. A new method of applying oxygenated and other gas-charged charcoal for curative and other purposes. Dated 5th May, 1869.
1419. H. A. Dufrené, of 10, Rue de la Fidélité, Paris, Civil Engineer. Improvements in desiccating and preserving meat and other organic substances. Dated 10th May, 1869.
1440. W. R. Lake, of Southampton-buildings, Chancery-lane. An improved detergent, or saponaceous compound. Dated 11th May, 1869.
1441. C. D. Abel, of Southampton-buildings, Chancery-lane. Improvements in galvanic batteries. Dated 11th May, 1869.
1461. A. V. Newton, of Chancery-lane. Improved machinery for expressing juices from organic matters. Dated 12th May, 1869.
1469. J. Townsend, Manufacturing Chemist, and P. Forbes, Analytical Chemist, both of Glasgow. Improvements in refining or treating oils and fats, and in apparatus therefor. Dated 13th May, 1869.
1471. J. Fawcett, of Huddersfield, York, Tin-plate Worker. Improved means and apparatus for measuring oil or other liquids. Dated 13th May, 1869.
1568. G. Johnston, of San Francisco, United States of America. Improvements in the distillation of spirituous liquors, and in apparatus to be employed therefor. Dated 20th May, 1869.
- Letters Patent have been issued for the following:—
3418. T. R. Crampton, of Great George-street, Westminster. Improvements applicable to furnaces for burning combustible liquids, either alone or in combination with other fuel. Dated 10th November, 1868.
3484. A. McNeil, of Tiverton, Engineer, and W. Wheaton, of Exeter, Merchant. An improved process for the manufacture of salts of ammonia from ammoniacal gas liquor. Dated 16th November, 1868.
3504. F. O. Ward, of 6, Hertford-street, Mayfair, W. Ibtson, of 3, New-inn, and A. G. Southby, of Bull rd., Wilts. Improvements in operations and apparatus for drying down alkaline solutions of extractive matter obtained in preparing vegetable fibrous materials for use in the manufacture of paper, and in recovering alkali therefrom for re-employment. Dated 18th November, 1868.
3506. A. McDougall, of Manchester, Manufacturing Chemist. Improvements in the manufacture of phosphatic

manures and sulphate of ammonia. Dated 18th November, 1868.

3514. W. Thompson, of 85, Lower Gardiner-street, Dublin, Merchant. Improvements in cases or boxes for packing bottles and jars. Dated 19th November, 1868.
3525. D. Burns, of Edinburgh. Improvements in chemical compounds, to be employed in treating diseases of the generative organs. Dated 20th November, 1868.
3984. D. Spill, of Paradise-terrace, Hackney. Improvements in the production of compounds containing xylidine. Dated 31st December, 1868.
439. H. B. Binko, of 41, Cleveland-road, Islington. Improvements in the manufacture and application of indigo, carmine, and other colouring matters, and bleaching agents. Dated 12th February, 1869.
641. F. A. Gatty, of Acorington, Lancaster, Manufacturing Chemist. A certain process or processes for obtaining the colouring matter of madder and another useful product. Dated 3rd March, 1869.
856. H. E. Newton, of Chancery-lane. Improvements in apparatus for measuring liquids. Dated 20th March, 1869.
- Patents which have become void:—
1347. P. Chenaillier, of Paris. Improvements in apparatus for concentrating liquids or for condensing alcoholic or other vapours. Dated 6th May, 1862.
1440. J. H. Johnson, of Lincoln's-inn-fields. Improvements in the purification of colza, rape, and other oils. Dated 13th May, 1862.
1171. S. Sequelin, of Deptford, Chemist. Improvements in the purification, clarification, and preparation of animal and vegetable wax, tallow, oils, and other similar waxy and fatty substances. Dated 26th April, 1866.
1214. A. Bernard, of Paris. A process of decolorizing albumen extracted from the red blood of animals. Dated 30th April, 1866.
1274. J. G. Hope, of Edinburgh, Manufacturing Chemist. An improved composition for destroying vermin on sheep, and other animals, and for preserving them therefrom. Dated 4th May, 1866.
1310. W. E. Gedge, of Southampton-buildings, Chancery-lane. An improved clarifying apparatus. Dated 8th May, 1866.
1320. J. L. Norton, of Belle Sauvage-yard, Ludgate-hill, and A. Giles, of Manchester. Improvements in apparatus to be employed in evaporating volatile and combustible liquids to obtain light or heat therefrom. Dated 8th May, 1866.
1340. R. Holliday, of Huddersfield, York, Manufacturing Chemist. Improvements in obtaining green colouring matters of various shades for dyeing and printing. Dated 10th May, 1866.
1409. P. J. Morand, of Manchester, Druggists' Sundryman. Improvements in infants' feeding bottles. Dated 18th May, 1866.
- Specifications published during the month:—
- Post-give 1d. extra.
2998. J. H. Johnson. Manufacturing white lead, &c. 101.
3067. W. Estor and C. T. Pearce. Disinfecting or deodorizing. 6d.
3098. H. Deacon. Manufacture of sulphuric acid. 4d.
3119. N. Smith. Treating and utilizing waste acid liquors. 41.
3183. H. Bunning, junr. Burning combustible liquids in furnaces. 4d.

Varia.

SELF-ACTING PHOTOGRAPHIC APPARATUS.

An invention new to English operators is described in the last number of the "Illustrated Photographer." It is called the "Ophthalmos," and is in reality a camera provided with mechanical contrivances automatically uncovering and covering the lens, and exposing the plate. It is sent up attached to a small balloon without an operator, and at any required height takes a picture of the surface of the earth beneath it with all the bearings of the compass accurately marked. It has often occurred to the writer of this that a

time might come when a system of self-recording photography (micro-copic perhaps) might "take note" of the progress of events, such as a battle, or of a spectacle of any kind, such as an eclipse, in a series of successive photographs at brief intervals, showing its whole progress from beginning to end; or the whole series of events in a banking-house, with portraits of every one who entered, and of all their movements—or in a ceremonial, such as a coronation, a marriage, etc.—*Builder*.

SUCRE FERREUGINEUX (M. CHANTEAUD'S) ET L'OXYDE DE FER.

This preparation is almost entirely soluble, and is stated to consist solely of sugar and oxide of iron uncombined, and therefore not in the state of a salt. This latter statement we have been at some trouble to verify; the iron is not, however, wholly dissolved by water, and the quantity of iron present is very small. The advantages claimed for this preparation are, that it does not exert any irritant action on the stomach and intestines, that it is rapidly absorbed and easily assimilated, and that it never produces constipation. Certainly the appearance and flavour of the article are greatly in its favour: it is entirely free from the ink-like astrigency which characterises several of the preparations of iron, and which is so repugnant to some patients. Messrs. Dinneford and Co., of New Bond-street, are the London agents.—*Lancet*.



IN writing on commercial matters, one is always rather tempted to look at the brighter side than to shadow forth, by desponding reports, gloomy prospects. In our own comments, however, we are exceedingly glad to find that this year, at least, we have rather erred in the opposite direction. There are few persons who are not sometimes deceived by appearances, more generally, perhaps, in the direction of illusory anticipations of good; but certainly of late the apparent dullness and absence of animation and speculation in our own markets has induced us to believe that the trade had very little, if at all, improved from the depression which had characterised the period embraced within the past two years. We have now before us, however, the Board of Trade Returns, made up to the close of April, and giving general statistics of the amount of business transacted up to that time, and a comparative statement for the corresponding four months of the two previous years. These figures will best tell their own story.—

The total declared value of British exports (during the periods referred to) were in 1867 £56,186,529, in 1868 £55,998,068, in 1869 £58,428,080. The items classified as drugs and chemicals, reached, in the four months of each year respectively, the following totals—£315,617, £307,265, and £394,608. It will thus be seen that, while a comparison of 1869 with 1868 shows an increase in the general export business of this country to an extent of a little more than four per cent., it gives an advance of more than twenty per cent. as the result of business in our own departments. The returns of value, under the head of alkali, however, it should be remarked, show a considerable falling-off, being £442,382 in 1869, against £498,454. This, however, is chiefly accounted for by the lower rates which now rule, the quantity exported being equal to the average. While we are on the subject of the export trade, it may be useful to notice two circulars issued from the Board of Trade, and dated June 3rd, the one copying a notice which has been issued by the Commissioner of Trade and Customs in the Colony of Victoria, prohibiting the importation into that Colony of certain classes of goods, and warning importers and others that any evasion of the law renders the goods liable to forfeiture. Among which goods we find specified opium, unless in ships of fifty tons burden at least, and in whole and complete packages, each containing not less than forty-five pounds net weight, and not containing any other goods, and unless into such ports as are or may be approved

of by the Governor in Council, for the importation and warehousing of opium.

The other notice is a translation of a decree of the Government of Venezuela, imposing an extra duty of 20 per cent. on all merchandise imported into that country during the next twenty months.

CHEMICALS.

On the whole, prices have been firmly maintained in this market, except with regard to Bleaching Powder and Brimstone, both of which have declined. The following is from the Circular of Messrs. Rooke, Spence, and Co., of Liverpool.—

ACIDS.—Foreign Tartaric selling at 1s. 2½d. Citric held at 2s. 8d., and Oxalic at 8d. per lb.

SODA.—Soda Ash selling at 1½d. to 2½d. per degree, according to brands. Caustic Soda steady at 13s. 3d. to 13s. 9d. for 60, and 18s. per cwt. for 70 per cent. Soda Crystals quiet at £4 5s., and Bicarbonate at £9 10s. per ton. Salts quiet at £3 per ton. Phosphate held at 38s. 6d., and Refined Borax at 67s. 6d. per cwt.

POTASH.—Prussiate quiet. Yellow 11½d., and Red 1s. 10d. per lb. Chlorate offering at 11½d. per lb. Bichrome in limited request at 5d. per lb. Muriate quiet at £3 10s. Refined Sulphate firmer at £27 10s. per ton.

AMMONIA.—Sales of Alum at £7 to £7 2s. 6d. for Lump, £7 15s. for Powdered, and £8 10s. per ton for Ground. Sal Ammoniac held at 38s. for first, and 36s. per cwt. for second quality. Sulphate steady at 16s. 6d. to 17s. per cwt. Carbonate 5½d. per lb.

SULPHUR dull at £10 for Roll, and £12 per ton for Flour. LIME.—Bleaching Powder moving off slowly at 8s. 6d. per cwt. Brown Ash-tate 13s. per cwt.

MAGNESIA.—Carbonate 42s. 6d. per cwt., Calcined 1s. 6d. per lb.

ASENICE.—Powdered quiet at £6 15s. to £7 per ton.

PHOSPHORUS.—Wedges 1s. 8½d., and Sticks 1s. 10d. per lb.

IRON.—Sales of Coppers at 52s. 6d. per ton.

COPPER.—Sulphate held at 24s. per cwt. Verdigris 1s. per lb.

LEAD.—Sugar neglected. White 40s., and Brown 38s. per cwt. Nitrate 32s. per cwt.

DRUGS.

At the public auctions during the month fair quantities of drugs have been disposed of, and generally prices have been well maintained. OPIUM, except for inferior qualities, which are again cheaper, is still at the same price. CAMPHOR is held firmly. MANNA has advanced. CASHEOIL is reported lower at Calcutta, but sells at former quotations here. COPELIVER OIL, however, is somewhat higher. In essential oils, LAVENDER and SASSAFRAS are quoted at an advance, while CASSIA and English PEPPERMINT are lower.

OILS.

A much brisker business has been transacted in OLIVE than heretofore, but the supply still continues very abundant, and therefore prices have not greatly advanced. RAPESEED is a little dearer, and LINSEED is at present very firm, with a good demand. Other oils are without change. TURPENTINE is a trifle lower. NAPHTHA has advanced. The total export of PETROLEUM from the United States from January 1st to May, 21st is 29,885,464 gallons. This is nearly double what it was four years ago.

DRYSALTARY.

The May sales of INDIGO were considered most unsatisfactory, three-fourths of the quantity offered having been either withdrawn or bought in. A large stock is now held, and the demand is still limited. Reports from Calcutta are favourable as to the new crop, though it is as yet too early to form a judgment. The probability is, however, that the price of INDIGO must suffer a further decline. From Calcutta we also learn that COCHINEAL and TURMERIC are in good demand, and the latter is dearer. SHELLAC is dull. Prices for GAMBIE in London are lower. LOGWOOD still continues to arrive slowly, and the stock is low, but prices have not advanced. Other dyewoods remain at former rates.

SPONGES, it is said, are to be bought low just now in some of the islands of the Greek Archipelago, the fishery of last year having been abundant, and the stock has been retained for the sake of obtaining higher prices, the contrary result being attained.

Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mining law for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.]

1869.				1868.			
May				May			
ACIDS.				ACIDS.			
	s. d.	to	s. d.		s. d.	to	s. d.
Acetic	0	4	0	0	4	0	0
Citric	0	5	0	0	5	0	0
Nitric	0	5	0	0	5	0	0
Oxalic	0	7	0	0	8	0	0
Sulphuric	0	0	0	0	0	0	0
Tartaric crystal ..	1	3	0	1	3	0	0
powdered ..	1	3	0	1	3	0	0
ANTIMONY ore	250	0	300	0	250	0	300
crude	25	0	26	0	25	0	26
regular ..	48	0	49	0	45	0	0
star	48	0	45	0	45	0	0
ARSENIC lump	16	0	16	0	16	0	16
BRIMSTONE, rough ..	105	0	0	132	0	135	0
roll	11	0	11	0	10	0	11
flour	13	0	13	0	14	0	14
IODINE, dry	0	2	0	0	0	0	0
IVORY BLACK, dry ..	0	0	0	0	0	0	0
MAGNESIA, calcined ..	1	6	0	1	6	0	1
MERCURY	137	0	137	0	137	0	137
MINIUM, white	20	0	21	0	21	0	22
orange	31	6	32	6	33	6	0
PRECIPITATE, red ..	2	6	0	2	6	0	0
white	0	0	0	0	0	0	0
PRUSSIAN BLUE	0	0	0	1	0	0	1
SALTS.							
Alum	145	0	150	0	150	0	155
powder	165	0	170	0	170	0	175
Ammonia.							
Carbonate	0	5	0	0	5	0	0
Hydrochlorate, crude,							
white	460	0	540	0	420	0	500
British (see Sal Ammoniac)							
Sulphate	325	0	0	280	0	280	0
Argol, Cape	65	0	66	0	72	0	72
France	43	0	60	0	48	0	70
Operto, red	23	0	25	0	25	0	28
Sicily	40	0	45	0	50	0	55
Naples, white	55	0	65	0	69	0	70
Florence, white ..	70	0	75	0	75	0	80
red	60	0	65	0	65	0	70
Bologna, white ..	0	0	0	75	0	80	0
Ashes (see Potash and Soda)							
Bleaching powder ..	9	6	0	13	0	13	6
Borax, crude	25	0	40	0	25	0	35
(Tincal)	40	0	50	0	50	0	50
British refined ..	68	0	70	0	50	0	52
Calomel	2	5	0	2	5	0	0
Copper.							
Sulphate	23	6	24	0	24	6	25
Copperas, green ..	52	6	60	0	55	0	60
Corrosive Sublimat. p. lb.	1	11	0	1	11	0	0
Cr. Tartar, French, p. cwt.	83	0	89	0	84	0	90
Venetian grey ..	72	6	75	0	65	0	70
brown	65	0	70	0	55	0	60
Epsom Salts	8	0	8	0	8	0	9
Glauber Salts	5	6	6	0	5	6	6
Limo.							
Acetate, white, per cwt.	12	6	21	6	13	0	21
Magnesia	0	0	0	0	0	0	0
Carbonate	42	6	0	42	6	0	0
Potash.							
Bichromate	0	5	0	0	5	0	0
Carbonate	32	0	0	33	0	0	0
Potashes, Canada, 1st							
sort	32	0	0	34	0	35	0
Pearlshades, Canada, 1st							
sort	32	0	0	34	0	35	0
Chlorate	0	11	0	0	12	0	0
Prussiate	0	11	0	0	10	0	1
red	1	9	1	1	9	1	10
Tartrate (see Argol and Cream of Tartar)							
Potassium.							
Chloride	7	10	8	8	3	8	6
Iodide	11	9	12	0	11	6	12
Quinine.							
Sulphate, British, in							
bottles	5	9	0	4	9	0	0
Sulphate, French ..	5	2	0	4	3	0	0
Sal Acet.	0	10	0	0	10	0	0
Sal Ammoniac, Brit. cwt.	36	0	38	0	32	0	33
Saltpetre:							
Bengal, 6 per cent. or							
under	25	9	26	3	19	0	19
Bengal, over 6 per cent.							
under	24	9	25	6	18	3	18
Madras	0	0	0	18	0	18	6
Bomb & Kurrachee p. cwt.	0	0	0	18	0	18	0
European	0	0	0	21	6	22	0
British, refined ..	26	6	27	0	23	9	23
Soda: Bicarbonate, p. cwt.	10	0	0	12	6	12	9
Carbonate:							
Soda Ash	0	1	0	0	2	0	2
Soda Crystals per ton.	80	0	0	90	0	92	6

1869.				1868.			
Soda.				Soda.			
	s. d.	to	s. d.		s. d.	to	s. d.
Hypsulphite	18	0	0	18	0	18	0
Nitrate	16	9	17	0	11	0	12
SUGAR of LEAD, White, cwt.	41	0	42	0	37	6	38
Brown	29	0	30	0	27	0	28
SULPHUR (see Brimstone)							
VERMOREL	1	0	1	0	0	11	0
VERMILION, English ..	2	6	3	0	2	6	3
China	2	7	0	0	3	0	0
DRUGS.							
ALGEE, Hepatic	80	0	180	0	80	0	180
Scotrine	120	0	240	0	180	0	350
Cape, good	2	0	3	0	30	0	30
Infusio	16	0	27	0	18	0	29
Barbados	70	0	190	0	75	0	210
AMBERGINS, grey	27	6	32	6	32	0	35
BALSAMS.							
Canada	1	3	0	0	1	5	0
Capivi	1	11	2	0	1	7	1
Peru	11	0	11	6	9	0	9
Tolu	2	3	0	0	2	6	0
BAKES.							
Canella alba	30	0	45	0	30	0	38
Cascarilla	26	0	36	0	23	0	35
Peru, crown & grey per lb.	0	10	0	11	0	10	11
Calsaya, flat	3	0	3	4	2	6	2
quill	2	0	3	4	2	6	2
Carthagen	0	0	1	7	0	9	1
Pitaya	0	9	1	5	0	8	1
Red	3	0	9	0	1	6	0
Bucho Leon	0	4	0	7	0	0	0
CAMPFIRE, China	100	0	0	0	125	0	127
Japan	110	0	0	0	157	0	0
China Eng. per lb.	1	2	3	2	2	2	2
CANTHARIDES	2	8	2	9	2	2	2
CHAMOMILE FLOWERS p. cwt.	60	0	100	0	45	0	80
CISTORIUM	5	0	32	0	5	0	32
DRAGON'S BLOOD, red p. cwt.	100	0	100	0	100	0	200
lump	100	0	200	0	100	0	240
FRUITS AND SEEDS (see also Seeds and Spices)							
Anise, China Star per cwt.	110	0	115	0	115	0	120
German, etc.	26	0	38	0	37	0	41
Beans, Tonguin	1	1	1	6	1	2	1
Cardamoms, Malabar							
good	7	6	7	10	7	6	8
Inferior	5	6	7	10	5	3	7
Madras	4	6	7	10	4	6	7
Ceylon	2	6	7	10	2	3	3
Corozo Nuts	16	0	19	0	12	0	18
Cassia Fistula	17	0	30	0	20	0	32
Cassia Seeds	11	13	14	0	11	0	12
Cocculus Indicus	26	0	23	0	32	0	35
Cologynth, apple	0	5	0	8	0	7	1
Croton seeds	40	0	60	0	40	0	105
Cubeba	40	0	42	0	40	0	42
Cumin	38	0	48	0	21	0	30
Dividivi	10	6	12	6	11	6	14
Fenugreek	9	14	15	0	9	14	15
Guinea Grain	39	0	40	0	45	0	45
Juniper Berries	7	0	8	0	9	0	10
Myraballans	9	6	10	14	9	6	10
Nux Vomica	11	0	15	0	11	0	15
Tamarinds, East India ..	15	0	20	0	25	0	31
West India	15	0	25	0	30	0	35
Vanilla, large	27	0	30	0	9	0	14
inferior	18	0	20	0	3	0	8
Wormseed	25	0	30	0	1	6	0
GINGER, Preserved, in							
lump (duty 1d. per lb.)	0	6	0	9	0	8	0
GUINS (see separate list)							
HONEY, Narbonne	0	0	0	0	0	0	0
Orleans	21	0	26	0	21	0	26
Jamaica	25	0	45	0	26	0	48
PEPACUANHA	7	6	7	10	6	6	9
ISINGLASS, Brazil	7	0	4	6	2	2	4
Tongue sort	2	0	3	0	2	0	3
East India	2	3	4	3	2	0	4
West India	4	0	4	4	3	5	3
Russ, long staple ..	8	0	8	0	9	0	10
"Can	5	0	8	6	5	0	8
"Simovia	1	6	2	6	1	6	2
JALAP, good	3	2	4	1	4	3	4
inferior	0	6	0	6	0	6	0
LEMON JUICE	0	1	0	11	0	0	1
Liquorice, Spanish per cwt.	63	0	68	0	65	0	70
Italian	48	0	67	5	50	0	69
small	2	0	2	6	1	6	1
MANNA, flaky	19	0	35	0	19	0	40
MILK	1	3	0	0	1	8	0
Almond, expressed per lb.	0	5	0	6	0	0	6
Castor, 1st rate	0	5	0	6	0	0	6
second	0	5	0	6	0	0	6
Butter, &c. &c.	0	4	0	5	0	0	5
Hombay (in casks) ..	0	4	0	5	0	0	5
Cod Liver	5	0	7	6	4	0	6
Croton	0	3	0	4	1	2	1
Essential Oils.							
Almond	40	0	0	58	0	0	0
Aniseed	9	3	9	8	3	8	6
Bay	80	0	70	0	80	0	80
Bergamot	9	0	17	0	12	6	22
Cajeput, (in bond) per oz.	0	1	0	2	0	2	0
Caraway	5	0	5	0	5	0	5
Cassia	6	0	6	0	6	0	6
Cinnamon	1	0	4	6	1	0	8

1899.				1898.			
Essential Oils, continued—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Cinnamon-leaf . . . per oz.	0	6	0	0	11	0	2
Citronelle . . . fine . . .	0	24	0	0	21	0	3
Clove . . . per lb.	0	34	0	0	4	0	0
Juniper . . . per lb.	1	9	0	2	9	0	0
Lavender . . .	3	0	4	2	9	3	9
Lemon . . .	4	6	8	4	6	8	0
Lemongrass . . . per oz.	0	43	0	0	5	0	0
Neroli . . .	0	0	0	0	0	0	0
Nutmeg . . .	0	4	0	0	3	0	8
Orange . . . per lb.	5	0	0	5	0	0	7
Otto of Rose . . . per oz.	15	0	0	16	0	0	20
Peppermint . . .	19	0	20	21	6	0	23
American . . . per lb.	19	0	20	21	6	0	23
English . . .	34	0	44	36	0	43	6
Rosemary . . .	1	9	2	2	9	0	0
Sassafras . . .	5	6	0	3	6	0	4
Spearmin . . .	4	0	18	10	0	30	0
Thyme . . .	1	10	4	2	0	4	0
Waco, expressed . . . per oz.	0	1	0	0	23	0	23
Oil, Turkey . . . per lb.	30	0	44	19	6	20	6
inferior . . .	20	0	33	0	0	0	0
QUASSIA (bitter wood) per ton	100	0	200	105	0	0	0
RUBRA, China, good and fine . . . per lb.	4	6	7	5	0	8	0
Good, mid. to ord. . .	4	9	3	5	0	8	0
Dutch trimmed . . .	0	0	0	10	0	12	0
Russian . . .	0	0	0	9	0	10	0
ROOTS—Columba . . . per cwt.	40	0	50	20	0	35	0
China . . .	27	0	35	3	0	35	0
Galangal . . .	15	0	20	16	0	20	0
Gentian . . .	19	0	20	16	0	17	0
Hellebore . . .	40	0	44	36	0	40	0
Ortiz . . .	40	0	44	36	0	40	0
Pellitory . . .	58	0	60	58	0	60	0
Pink . . . per lb.	0	6	0	0	9	0	11
Rhatany . . .	1	0	6	0	10	0	10
Seneca . . .	1	11	0	1	6	0	0
Snake . . .	1	3	0	1	9	0	0
Saffron, Spanish . . .	117	0	34	29	0	35	0
Salep . . . per cwt.	110	0	120	90	0	110	0
SARSAPARILLA, Lima per lb.	0	7	0	0	0	0	0
Para . . .	1	0	1	0	0	0	0
Honduras . . .	1	0	1	0	0	1	4
Jamaica . . .	1	4	2	1	0	2	0
SASSAFRAS . . . per cwt.	14	0	34	10	0	0	0
SASSAMONY, Virgin . . . per lb.	28	0	34	28	0	36	0
SECOND & ordinary . . .	12	0	10	0	0	0	0
SENNA, Bombay . . .	0	3	0	0	2	0	3
Tinivelly . . .	0	2	0	0	23	0	0
Alexandria . . .	0	1	0	0	5	0	10
SFERMACET, refined . . .	1	5	0	0	0	0	0
American . . .	1	4	0	1	5	0	0
SQUILL . . .	0	1	0	0	1	0	2

GUMS.

AMMONIA drop . . . per cwt.	220	0	260	0	260	0	260
AXIMI, fine washed	230	0	330	0	210	0	230
boldscrapped	200	0	280	0	190	0	210
sorts . . .	110	0	180	0	100	0	130
dark . . .	80	0	110	0	70	0	100
ARABIC, E. I., fine	78	0	84	0	80	0	85
pale picked . . .	70	0	76	0	62	0	79
erts, gd. to fin . . .	220	0	270	0	45	0	90
garblings . . .	170	0	210	0	170	0	210
TURKEY, pick. gd to fin . . .	90	0	170	0	85	0	160
second & inferior . . .	75	0	110	0	65	0	80
In sorts . . .	44	0	52	0	38	0	40
Gedda . . .	80	0	100	0	70	0	80
BARBARY, white . . .	74	0	78	0	68	0	72
brown . . .	32	0	50	0	37	0	48
AUSTRALIAN . . .	75	0	110	0	55	0	90
ASSAPETIDA, com. to gd . . .	280	0	460	0	380	0	600
BENZAMIN, 1st qual . . .	251	0	290	0	140	0	240
2nd . . .	51	0	120	0	40	0	120
3rd . . .	92	0	105	0	60	0	70
CORAL, Angola red . . .	100	0	110	0	70	0	84
Benguela . . .	32	0	50	0	37	0	48
Siera Leon . . . per lb.	31	0	47	0	27	0	44
Manilla . . . per cwt.	95	0	105	0	88	0	91
DAMMAR, pale . . .	15	0	20	0	13	0	19
EUPHORBUM . . .	220	0	250	0	240	0	290
GALBANUM . . .	300	0	320	0	200	0	240
GAMBOGE, peckd pipe . . .	0	8	1	4	0	6	2
GUAIACUM . . . per lb.	60	0	60	0	40	0	40
KINO . . .	46	0	60	0	35	0	40
KOWRIE, rough . . .	50	0	100	0	42	0	75
scraped . . .	50	0	50	0	5	0	7
MASTIC, picked . . . per lb.	200	0	260	0	170	0	210
MYRRH, gd. & fine per cwt.	90	0	170	0	100	0	160
sorts . . .	80	0	85	0	78	0	82
OLIBANUM, p. sorts	70	0	75	0	70	0	80
amber & glw . . .	70	0	75	0	45	0	45
garblings . . .	75	0	80	0	80	0	90
SENKAL . . . per cwt.	89	0	135	0	82	0	107
SANDARAC . . .	13	0	14	0	14	0	14
THUS . . .	230	0	360	0	240	0	400
TRAGACANT, best . . .	120	0	230	0	160	0	230
in sorts . . .	87	0	0	0	36	0	0
SHAL, pale . . . per tun	33	0	36	0	34	0	36
yellow to tinged . . .	31	0	32	0	33	0	34
brown . . .	96	0	0	100	0	0	0
SPEARM, body . . .	0	0	0	0	0	0	0
headwater . . .	0	0	0	0	0	0	0

OILS.

SHAL, pale . . . per tun	33	0	36	0	34	0	36
yellow to tinged . . .	31	0	32	0	33	0	34
brown . . .	96	0	0	100	0	0	0
SPEARM, body . . .	0	0	0	0	0	0	0
headwater . . .	0	0	0	0	0	0	0

Oils, continued—

	44 10	45 0	39 0	42 0	42 0
WHALE, South Sea, pale	40 0	41 0	36 0	39 0	39 0
yellow	39 0	43 0	35 0	37 0	37 0
brown	37 0	0	34 0	34 0	0
East India, Fish	32 0	0	35 0	0	0
OLIVE, Gallipoli	52 0	0	71 0	0	0
Trieste	51 0	52 0	70 0	0	0
Levant	47 10	48 0	64 0	0	0
Mogador	47 0	0	68 0	0	0
Spanish	50 0	0	68 0	0	0
Sicily	49 0	0	68 0	0	0
COCONUT, Cochinch. per ton	39 0	0	34 0	0	0
Ceylon	41 0	0	51 0	0	0
Sydney	38 0	43 0	44 0	50 0	0
GROUND NUT AND GINGELLY:					
Bombay	39 0	0	50 0	0	0
Madras	41 0	40 0	48 0	0	0
PALM, fine	31 0	0	32 10	48 0	0
LINSEED	33 0	31 10	32 10	0	0
RAPESEED, English, pale	38 10	39 0	34 0	0	0
brown	39 0	0	36 0	0	0
Foreign pale	39 0	0	36 0	0	0
brown	37 0	0	34 0	0	0
COTTONSEED	26 10	32 0	30 0	0	0
LARD	72 0	73 0	70 0	0	0
TALLOW	35 0	0	37 0	38 0	0
TURPENTINE, American, cks.	29 0	0	30 0	0	0
PETROLEUM, Crude	14 0	15 0	10 0	11 0	0
refined, per gall.	1 8	1 9	1 5	0	0
Spirit	0 8	0 9	0 8	0 8	0
SEEDS.	s. d.	s. d.	s. d.	s. d.	s. d.
CANARY	58 0	60 0	50 0	70 0	0
CARAWAY, English per cwt.	36 0	38 0	44 0	46 0	0
German, &c.	20 0	22 0	18 0	20 0	0
CORIANDER	42 0	44 0	42 0	44 0	0
HEMP	65 0	72 0	0 0	0 0	0
LINSEED, English per qr.	58 0	60 0	50 0	50 0	0
Black Sea & Azof	58 0	60 0	50 0	50 0	0
Calcutta	58 0	60 0	50 0	50 0	0
Bombay	59 0	60 0	64 0	60 0	0
St. Petersburg	57 0	57 6	0 0	0 0	0
Mustard, brown, per bshl.	14 0	17 0	15 0	16 0	0
white.	13 0	18 0	10 0	12 0	0
POPPY, East India per qr.	62 0	0 0	56 0	0 0	0
SPICES.					
CASSIA LIXNEA . . . per cwt.	127 0	135 0	118 0	126 0	0
Vera	50 0	90 0	60 0	80 0	0
Buds	140 0	160 0	140 0	160 0	0
CINNAMON, Ceylon.					
1st quality . . . per lb.	2 0	3 10	1 11	2 6	0
2nd do. . .	1 8	3 0	1 6	2 3	0
3rd do. . .	1 8	3 0	1 6	2 3	0
Tellicherry . . .	0 0	0 0	0 0	0 0	0
CLOVES, Penang . . .	0 10	0 11	0 10	1 0	0
Amboyna . . .	0 5	0 6	0 4	0 5	0
Zanzibar . . .	0 4	0 4	0 3	0 3	0
GINGER, Jam. fine per cwt.	90 0	200 0	100 0	150 0	0
Ord. to good . . .	35 0	80 0	40 0	95 0	0
African . . .	24 0	25 0	29 0	30 0	0
Bengal . . .	30 0	0 0	30 0	0 0	0
Malabar . . .	32 0	0 0	33 0	0 0	0
Cochin . . .	32 0	120 0	40 0	110 0	0
PEPPER, Blk. Malabar, per lb.	0 5	0 5	0 4	0 5	0
White, fellcherry . . .	0 10	1 6	0 9	1 9	0
Cayenne . . .	2 9	3 6	0 6	0 8	0
MACIS, 1st quality . . . per lb.	1 10	2 3	1 5	2 7	0
2nd and inferior . . .	2 3	4 2	2 2	4 4	0
NUTMEGS, 75 to 80 to lb.	1 10	2 3	1 7	2 7	0
90 to 80 . . .	1 5	0 1	1 2	0 1	0
132 to 95 . . .	1 5	1 9	1 2	1 6	0
VARIOUS PRODUCTS.					
COCHINEAL—					
Honduras, black . . . per lb.	3 1	4 3	3 3	4 6	0
Pro. colors . . .	1 6	2 10	1 9	3 10	0
" pesty . . .	3 0	3 3	3 2	3 5	0
Mexican, black . . .	11 3	3 1	10 0	3 0	0
silver . . .	2 1	3 3	2 10	3 4	0
Tenerife, black . . .	2 1	3 4	3 0	3 6	0
silver . . .	2 1	3 4	3 0	3 6	0
PUMICE STONE . . . per tun	120 0	160 0	120 0	160 0	0
SOAP, Castile . . . per cwt.	38 0	39 0	38 0	40 0	0
SPONGE, Turk, 5 in pkd prib . . .	12 0	15 0	12 0	14 0	0
Fair to good . . .	5 0	11 0	5 0	0 0	0
Ordinary . . .	2 0	4 0	2 0	0 0	0
Bahama . . .	0 6	2 3	0 8	1 9	0
TERRA JAPONICA—					
Gambier . . . per cwt.	16 9	17 0	17 6	18 0	0
Free cubes . . .	20 0	23 0	25 0	27 0	0
Cutch . . .	15 0	28 0	40 0	43 0	0
WOOD, DYE, Bar . . . per ton	24 0	24 15	24 0	24 10	0
Brazil . . .	0 0	0 0	70 0	55 0	0
Brazil-wood . . .	0 0	0 0	70 0	55 0	0
Cutch . . .	26 0	32 0	34 0	38 6	0
Fustic, Cuba . . .	7 15	8 10	7 10	8 5	0
Jamaica . . .	5 5	7 0	7 0	7 10	0
Savannah . . .	6 0	7 0	6 4	6 5	0
Logwood, Campeachy . . .	10 0	10 10	9 0	10 0	0
Honduras . . .	6 10	7 10	4 0	4 10	0
St. Domingo . . .	7 5	7 6	7 0	7 10	0
Jamaica . . .	7 5	7 10	4 10	4 15	0
LIMA, first pile . . .	14 6	15 0	33 0	37 0	0
Red SANDERS . . .	7 9 6	7 10	6 17 6	7 0	0